
CENTRAL VALLEY ENERGY CENTER (01-AFC-22)

DATA RESPONSE, SET 1A

Submitted by
Calpine Corporation

February 26, 2002



2485 Natomas Park Drive, Suite 600
Sacramento, California 95833-2937

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

TechnicalArea: AirQuality

CECAuthor :WilliamWalters,Lisa BlewittandKeithGolden

CPPAUTHORSierraResearch

BACKGROUND

AtthetimetheAFCwascompleted,thefinalturbineselectionhadnotbeendetermined. Theenvironmentalanalysispresentedwasbasedonthree Siemens-Westinghouse 501FDcombustionturbines.Staffneedsadditionalinformationtobeassuredthatthe projectisbeingevaluatedascurrentlyproposed.

DATAREQUEST

1. Pleaseidentifyanychangesnecessarytotheairqualityanalysisbasedonthe selectedturbinemodel,ifitisnotthe Siemens-Westinghouse501FD.This shouldincludeanynecessaryrevisionstotheoperating,startupand commissioningemissiontotalsandrevisionstothemodelingresultsas necessarytorelecttheturbineselectionandanyotherchangestothe project thatmayhaveoccurredsince theAFCwasfiled.

Response: No changes are necessary because no change in the turbine model is being proposed at this time. The applicant notes that the CEC has licensed several projects in which the final turbine selection had not been made; therefore it is not clear why there is a concern in this proceeding with the analysis of the project based on three Siemens-Westinghouse 501FD turbines or equivalent. The applicant has proposed hourly, daily and annual heat input limits, emission concentration and mass emission limits that we anticipate will be enforced as permit conditions and conditions of certification. The applicant would not seek to change these limits even if an alternative equivalent turbine were ultimately selected.

The applicant notes that the Three Mountain Power project was licensed with two different turbines that had different particulate emission rates, so that the conditions of certification included the option for two different mitigation requirements depending upon the final turbine selection. The final staff assessment for the Otay Mesa project considered three different turbine models. The authority to construct issued to the Delta Energy Center authorized the construction of either Siemens-Westinghouse 501FD or a General Electric Frame 7FA turbines.

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2. Please list any other revisions to the project that would affect air quality emission or modeling results that have occurred since the AFC and AFC Supplement were filed. Please also list revisions to assumptions that affect the analysis of the project.

Response: The applicant is not aware of any changes that have been made to the project since the AFC and the AFC Supplement were filed, or of revisions that have been made to assumptions that would affect the analysis of the project. Calpine is evaluating startup emissions performance for its operating facilities with S/W 501FD turbines, and if Calpine determines that a longer potential startup period may be necessary, we will so notify the CEC and SJVUAPCD.

BACKGROUND

The air dispersion input/output modeling files provided electronically with the AFC are incomplete. Staff needs all relevant input/output files, and a description of the files used in the modeling analyses, in order to complete the assessment of the modeling analyses conducted by the Applicant.

DATA REQUEST

3. Please provide an electronic copy of a complete set of the modeling input/output files. Staff's review indicates that the construction PM₁₀ modeling output files and all other construction modeling input/output files (i.e. construction NO₂, CO and SO₂ modeling files) were not included in the CD that was provided to the CEC in October with the AFC. Staff's review of the modeling files is not complete, so we would encourage the Applicant to review the October CD and determine if additional modeling files, other than those listed above, should be provided in the data response.

Response: Construction modeling input files were included on the CD that was provided to the CEC. These files are titled:

CONS92.INP	CONS93.INP	CONS94.INP
CONS95.INP	CONS97.INP	CONST.INP

Construction output files were inadvertently omitted from the original CD and are being provided on CD under separate cover.

DATA REQUEST

4. Please provide a short tabular description of all of the modeling input files.

Response: A list and brief description of the modeling files were provided by John Carrier at CH2M Hill to Keith Golden, Will Walters and Mathew Trask via

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email on November 5, 2001. For convenience, a copy of the list and description is included as Attachment AQ-4.

BACKGROUND

In the AFC (Appendix 8.1D), the temporary PM₁₀ impacts from construction appear to be potentially significant. Additionally, there appear to be errors in the reporting of construction emissions.

DATA REQUEST

5. Please provide the daily and hourly construction schedules. Also identify the anticipated construction schedule for the on-site and linear facilities, identifying overlaps in the monthly construction schedule.

Response: Specific daily and hourly construction schedules are not available. Construction activities have been allocated on a monthly basis. Construction emissions are calculated on a month-by-month basis using equipment loadings for the month and assuming the activities occur for the entire month, seven days per week, ten hours per day (24 hours per day for fugitive dust emissions). Specific schedules are not available for the linear facilities. A worst-case assumption would be that all construction activities, both on-site and off-site, occur at the same time.

DATA REQUEST

6. Please remodel on-site construction emissions using appropriate hour of day emission factors, if necessary, based on the heavy equipment operating schedule and any corrected emission calculations.

Response: As discussed above in Response 5, the construction emissions calculations and modeling analyses assumed that all construction activity persists for ten hours per day (7 am to 5 pm). No corrections or remodeling are necessary.

DATA REQUEST

7. In Table 8.1D-1 (AFC Appendix 8.1D, pg. 8.1D-3), the emissions of SO_x from offsite worker travel and truck/rail deliveries appear to be incorrect (1s 1/7 equal to 1.7?). Please provide an updated table.

Response: The 1/7 lb/day shown as SO_x emissions for offsite worker travel and truck/rail deliveries in Table 8.1D-1 is a typographical error and should have been shown as 1.7 lbs/day. The typographical error is corrected in the revised version of the table, Table 8.1D-1R.

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TABLE 8.1D-1R
Maximum Daily Emissions During Onsite Construction
(Month 7; Maximum Dust Emissions), Pounds Per Day

	NO _x	CO	POC	SO _x	PM ₁₀
Onsite					
ConstructionEquipment	154.7	39.5	11.0	4.4	10.0
FugitiveDust	--	--	--	--	54.9
Offsite					
WorkerTravel,Truck/Rail Deliveries	98.9	738.4	60.5	1.7	3.5
TotalEmissions	253.7	777.9	71.5	6.1	68.4

DATA REQUEST

8. Please provide electronic copies of any new or revised construction modeling input/output files.

Response: As indicated in Response 3, the construction modeling output files that were inadvertently omitted from the original CD are being provided.

BACKGROUND

Maximum emission rates expected during startup or shutdown are provided for NO_x, CO, and VOC for the turbines. PM₁₀ and SO₂ emissions are not included in Table 8.1-20 (AFC page 8.1-26) because emission of these pollutants will be lower during startup than during baseload facility operations. Staff needs additional information and clarification to complete the review of the air quality impact analysis.

DATA REQUEST

9. Please identify if multiple turbines will undergo cold, warm or hot startup simultaneously.

Response: Only one turbine will be in startup mode at a time. As indicated in AFC Section 8.1.5.1.1, the maximum hourly emissions for the project are based on one turbine is in startup mode at a time.

DATA REQUEST

10. Please identify whether emissions may also be elevated during "warm" or "hot" startups, and if so provide estimates of the warm or hot start emissions.

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Response: The startup/shutdown emission rates shown in Table 8.1-20 of the AFC represent the highest emissions under cold, warm or hot startup conditions. No distinction is being made between the types of startups.

DATA REQUEST

11. Please identify if the combined duration of cold, warm and hot starts may be greater than 416 hours per year per turbine (AFC pg. 8.1-27).

Response: The applicant expects that each turbine will be in startup/shutdown mode for up to 416 hours per year, and has evaluated maximum annual NO_x, CO and VOC emissions from the project on that basis. The applicant expects that the conditions of certification will limit quarterly and annual project emissions, including emissions during startup and shutdown, to the levels proposed by the applicant. If a turbine is in startup/shutdown mode for more than 416 hours per year, then emissions during non-startup hours will have to be reduced to keep quarterly and annual emissions below the limits.

BACKGROUND

The maximum facility impacts calculated from each of the modeling analyses are summarized in Table 8.1-26 (AFC pg. 8.1-38). The results are provided in Appendix 8.1B. Staff requires additional information to support the ISCST3 results presented.

DATA REQUEST

12. The ISCST3 modeling impact results by pollutant and averaging period ($\mu\text{g}/\text{m}^3$) are provided in Table 8.1-26, however the results presented cannot be matched with the results provided in Table 8.1B-3 (AFC Appendix 8.1B, pg. 8.1B-4). Specifically:
- a. Maximum impacts appear to be based on an emission rate using 3.0 g/s as the basis, not 4.0 g/s as shown in the lower table. Please confirm the basis.
 - b. Staff believes the turbine emission rates (g/s) provided in the top table have been multiplied by three (i.e. three turbines) to get the modeled impacts shown in the middle table. Please confirm.

Responses:

- a) The heading on the lower table is incorrect and should read "Max impact per 3.0 g/s." These results were obtained by modeling each of the three turbines with a 1.0 g/s emission rate.

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- b) The modeled impacts shown in the middle table (titled "Modeled Impacts by Pollutant and Averaging Period (ug/m³)" were obtained by multiplying the appropriate turbine emission rate for the pollutant and averaging period from the top table by the appropriate unit impact rate from the bottom table for the averaging period. For example, the one-hour NO_x impact of 18.06 ug/m³ for Case 1 was obtained by multiplying the one-hour NO_x emission rate for Case 1, 2.995 g/s, by the one-hour unit impact for Case 1 of 6.029 ug/m³.

The results in Table 8.1-26 should not match results provided in Table 8.1B-3. Table 8.1B-3 presents the results of the screening analysis that included only the turbines/HRSGs, while Table 8.1-26 presents the results of the refined analysis and includes all of the facility equipment (the turbines/HRSGs, the auxiliary boiler, the emergency equipment and the cooling tower).

BACKGROUND

The Applicant has indicated that the project meets all Best Available Control Technology Requirements; however, recent BACT determinations by USEPA, including the Morro Bay Project, suggest that for 7F frame turbine combined-cycle plants, USEPA considers BACT for NO_x to be 2.0 ppm (@15% O₂ 1-hour rolling average) and BACT for CO to be 2.0 ppm (@15% O₂ 3-hour rolling average). The Applicant (AFC Appendix 8.1E, pg. 8.1E-1) is currently proposing a NO_x emission limit of **2.5 ppm** (@15% O₂ 1-hour rolling average), or 2.0 ppm (@15% O₂ annual average), and a CO emission limit of **6.0 ppm** (@15% O₂ 3-hour rolling average). CARB Guidelines for Power Plants (AFC Appendix 8.1E, pg. 8.1E-5) suggest an ammonia emissions limit of 5 ppm (@15% O₂ 3-hour average), which has been agreed to by other recent combined cycle projects. The Applicant is proposing an ammonia slip concentration of **1 ppm** (@15% O₂ 1-hour average). Staff needs additional information to identify whether the project will meet BACT for NO_x, CO and ammonia.

DATA REQUEST

13. Please identify if the project will be able to meet USEPA's anticipated BACT determination for NO_x and CO emissions. Please identify if any additional control measures will be necessary to meet NO_x and CO emission limits of 2.0 ppm (@15% O₂ 1-hour rolling average) and 2.0 ppm (@15% O₂ 3-hour rolling average), respectively; and please provide the associated costs of any such control measures.

Response: CVEC has serious concerns regarding the ability of advanced combustion and emission control systems to meet levels as low as those described in the data request on a consistent basis. To the best of CVEC's knowledge, these low emission rates have been proposed based on vendor

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guarantees. While CVEC, LLC, has designed the CVEC project to meet a NO_x level of 2.0 ppm on a short-term basis, and anticipates receiving a vendor guarantee to support that design, this does not, in fact, ensure that such a low level can be met on a consistent basis.

In a recent letter to the South Coast AQMD, USEPA expressed the opinion that a 2.0 ppm NO_x level "has been consistently achieved in a Region IX facility." In response to that letter, CVEC's air quality consultants filed a Freedom of Information Act request seeking all of the information in USEPA's possession to confirm that opinion. In a response dated December 10, 2001, USEPA confirmed that it has no such information in its possession, and has not independently verified the claim that a 2.0 ppm NO_x level was being consistently achieved. Consequently, we believe that USEPA's comment letter to the South Coast AQMD cannot be relied upon as determinative of BACT. A copy of the Freedom of Information Act request and USEPA's response is enclosed in Attachment AQ-13.

With respect to carbon monoxide, the applicant expects that CVEC, as designed, will achieve a CO level of 2.0 ppm on a routine basis. However, again, CVEC, LLC, does not believe that such a level should be required for this facility, unless and until there are sufficient data that demonstrate that this low level can be achieved on a consistent basis. USEPA's letter to the SCAQMD acknowledges that there are a number of projects that have had permits issued recently with CO limits of 4.0 ppm. USEPA's position regarding the 2.0 ppm level is based solely on a permit issued to a facility in Massachusetts. The applicant does not believe that it is appropriate to establish BACT levels based on permit conditions in the absence of demonstrations that these low levels can, in fact, be achieved in use on a consistent basis.

DATA REQUEST

14. Please explain why this project, as opposed to other proposed and certified projects, cannot meet an ammonia slip level of 5 ppm (@ 15% O₂). Also please identify measures, including increasing catalyst surface area, which might allow the project to meet the BACT guideline level for ammonia, and identify the associated costs of such measures.

Response: The SJVUAPCD's regulations do not require a BACT determination for ammonia slip. Although USEPA has indicated that it "believes" an ammonia slip limit of 5.0 ppm can be met in conjunction with a NO_x limit of 2.0 ppm, no supporting data for that conclusion have been presented. Since the CVEC project is designed to meet a 2.0 ppm NO_x level, we believe it would be inappropriate to

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increase the uncertainty associated with compliance by simultaneously reducing the ammonia slip level. Finally, we would ask that the CEC take note of the fact that the Sutter Power Plant has not been able to achieve an ammonia slip level of less than 5.0 ppm on a consistent basis in conjunction with a 2.5 ppm NO_x level.

BACKGROUND

EmissionsoffsetsfortheCentralValleyEnergyCenter(CVEC)projectarerequiredfor VOC, NO_x andPM₁₀(AFCTable8.1-37,pg.8.1-52)basedonDistrictregulations. AdditionalinformationregardingemissionsoffsetsareprovidedinalettertotheDistrict datedNovember20,2001(AFCSupplementalAttachment12-AQ-9).Staffneeds additionalinformationregardingthe ERCssecuredforthisproject.

DATA REQUEST

15. PleaseprovidecopiesoftheDistrictcertificates,andpurchaseagreementsor optioncontractsforcertificatesnotcurrentlyintheApplicant'sname,forall projectERCsources.

Response: Copies of the District certificates for ERCs allocated to this project are being provided as Attachment AQ-15.

DATA REQUEST

16. PleaseconfirmthroughcommunicationwiththeDistrictandUSEPAthatthe ERCsproposedforthisprojecthavepassedtheUSEPAReasonablyAvailable ControlTechnology(RACT)adjustmenttest.Pleaseprovidewrittenconfirmation fromUSEPAtoverifythefindingspresentedintheresponsetothisrequest.

Response: The ERCs proposed for this project are not required to be adjusted. The signed agreement between USEPA and the District on the 1998 amendments to the District NSR rule explicitly states:

“ERC shall not be discounted at time of use for NSR purposes. The District shall institute an emission tracking system to demonstrate equivalency with federal programs. Tracking system to be part of the SIP submittal. Board Resolution Item: If the tracking system shows that there is not an equivalency, the APCO will revisit this provision and take corrective action.”

BACKGROUND

AspartoftheDataAdequacyresponsetheApplicantprovidedaletterdatedJanuary8, 2002,thatseemstoindicate that,ifnecessary,the project'sSO₂emissionscouldbe offsetbyconsideringtheSO₂ ERCsthat arebeingusedtooffsetaportionofthe project'sPM₁₀emissions.Whilestaffisstillreviewingtheapplicabilityofthis

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methodology, our calculations were not able to duplicate the numerical findings provided in the Applicant's letter. We require additional information to fully understand the Applicant's calculation approach and offset proposal intentions as stated in this letter and as given in the other Data Adequacy responses.

DATA REQUEST

17. Please provide detailed calculations of the PM₁₀ and SO₂ emission reduction credits being used to offset the project's PM₁₀ emissions assuming that the current USEPA offset sanction remains in force, and please provide a separate calculation assuming that the offset sanction has been lifted.

Response: The requested calculation for the offset requirements and credits under the USEPA offset sanctions is provided as Attachment AQ-17a. A calculation of offset requirements and credits without the USEPA sanctions is provided in Attachment AQ-17b.

DATA REQUEST

18. Please confirm or refute staff's belief that the Applicant's current offset proposal is strictly limited to using the quantity of SO₂ ERCs that would be necessary to meet the SJV APCD offset requirements.

Response: The offset package described in Attachment I to the November 20, 2001, letter to the SJVUAPCD is intended to meet the requirements of the SJVUAPCD's offset requirements per Rule 2210, as well as the current USEPA sanctions that require an applicant to provide offsets for PM₁₀ and PM₁₀ precursors at a ratio of 2:1. The January 8, 2002, letter to Mathew Trask regarding SO₂ mitigation described how some of the SO₂ ERCs being provided to the SJVUAPCD as offsets under the District rule can be considered excess PM₁₀ mitigation under CEQA and thus could be considered by the CEC as mitigation for SO₂.

DATA REQUEST

19. Please confirm or refute staff's belief that the Applicant's PM₁₀ offset proposal, if the offset sanction were lifted, would be revised by reducing the amount of interpollutant offsets currently proposed, and not revised by reducing the amount of direct PM₁₀ ERCs currently being proposed.

Response: If the USEPA offset sanctions are lifted, Applicant's PM₁₀ offset package will be revised by reducing the amount of SO₂ ERCs and not by reducing the amount of direct PM₁₀ ERCs.

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BACKGROUND

A description of the Central Valley Energy Center (CVEC) project's planned initial commissioning phase is provided in Data Adequacy Response 6-AQ-4. Staff requires additional information regarding initial commissioning.

DATA REQUEST

20. Please confirm the total duration of initial commissioning and the basis (e.g. approximately seven weeks duration with each CTG/HRSG train being commissioned one at a time).

Response: The Applicant expects the duration of time from first fire of the first CTG to completion of acceptance testing of all three CTG's, to last no less than 3 months. A CTG commissioning schedule would typically alternate work between different CTG's. Normally, only one CTG is in operation at any given time. When multiple CTG's are compliant, they may run concurrently for continued commissioning activities. For example, multiple compliant trains may be commissioned at the same time for steam blows and for commissioning the STG.

However, as stated in the data adequacy response, this is an estimate based on the Applicant's current knowledge of the commissioning sequence and equipment performance. As with other previously licensed projects, the Applicant expects to prepare and submit a commissioning plan prior to commencement of commissioning that will provide more project-specific detail than is available at the project design stage.

DATA REQUEST

21. The Gas Turbine/HRSG commissioning profile provided in Attachment 6-AQ-4 (of the Data Adequacy response), allows 264 hours for full load, full SCR testing for CTG/HRSG1, but only 24 hours for CTG/HRSG2 and CTG/HRSG3. Please explain this basis.

Response: Based on a review of commissioning schedules and site data the last phase of commissioning testing with SCR at full control until COD, may range from approximately 200 hours to 600 hours per CTG. The time required for this phase of testing will vary from site to site and on scheduling. Please see revised table, Attachment AQ-21.

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22. Please provide a complete table of commissioning modeling results and the associated analysis based on the information provided in Attachment 6-AQ-4. The modeling analysis performed should incorporate maximum emissions for all averaging times for each criteria pollutant modeled. Data should support the information presented in section 8.1.5.1.2, "Impacts During Turbine Commissioning" (page 8.1-39).

Response: The applicant presented an emissions and modeling analysis evaluating expected worst-case ambient impacts of NO₂ and CO in the AFC (section 8.1.5.1.2, p. 8.1-39, as cited above). The analysis of maximum NO₂ impacts assumed fuel consumption at approximately half the full load flow rate and a worst-case hourly NO_x emission concentration of 100 ppm, resulting in an assumed worst-case NO_x emission rate of 356 lbs/hr. The maximum modeled one-hour average NO₂ impact at this emission rate was 148 ug/m³. At the request of the staff, a more detailed analysis of commissioning activities and emissions was prepared as data adequacy response 6-AQ-4. The highest hourly NO_x emission rate calculated in this more detailed analysis was 189 lbs/hr.

A new modeling analysis using the lower emission rate developed using the more refined assessment would only show lower impacts and would not provide any useful new information regarding the project's impact on air quality.¹

Similarly, maximum CO emissions during commissioning are shown in Attachment 6-AQ-4 to be 385 lbs/hr during the part load tests and 838 lbs/hr during the hot start tests that will occur at the end of the commissioning period. Both of these emission rates are lower than the 902 lbs/hr emission rate that was used to evaluate startup emission impacts, so a new modeling analysis using the lower emission rates from Attachment 6-AQ-4 would not provide any useful new information regarding the project's impact on air quality.

Finally, as SO₂ and PM₁₀ emissions will not be higher during commissioning activities than during normal turbine operations, no additional modeling analysis of these pollutants is required for any averaging period.

DATA REQUEST

23. Please provide the assumed exhaust parameters for each of the operating modes provided in the table in Attachment 6-AQ-4.

¹The applicant also notes that the analysis in the AFC of emissions during startup evaluated ambient impacts at minimum load and an emission rate of 240 lbs/hr; commissioning impacts evaluated at 189 lb/hr will also be lower than startup impacts.

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Response: As stated in Response 6-AQ-4, no information is available regarding stack parameters during full speed, no-load testing. As stated in that data adequacy response, stack parameters during the other phases of the commissioning operations will vary because turbine conditions will be transient rather than steady state. The minimum (70%) load parameters were used in evaluating impacts during commissioning. Those exhaust parameters were provided on p. 8.1-39 of the AFC and in 6-AQ-4.

DATA REQUEST

24. Please provide the calculation basis for each of the operating modes provided in Attachment 6-AQ-4, including number of startups, startup duration, startup type (cold, warm, hot), average turbine load, etc.

Response: The calculation basis for each of the operating modes provided in Attachment 6-AQ-4 was provided in the footnotes to the table in Attachment 6-AQ-4. The footnotes are reproduced in a larger font as Attachment AQ-24.

BACKGROUND

In order for the District to issue CVECA permits to construct, the Applicant must demonstrate that all of their facilities within the state of California are in compliance with their respective permits and all air quality regulations.

DATA REQUEST

25. Please provide a listing of the operating facilities with air quality permits owned by the Applicant or its affiliates in the state of California. Identify the location of each facility, the local permitting district, whether the facility has a PSD permit issued separately from USEPA and list the compliance status of each facility.

Response: A copy of the certification of compliance is being provided as Attachment AQ-25.

BACKGROUND

In order to assess the continuing air quality permitting issues under the accelerated timeframe for the assessment of this project, staff require timely copies of all written communication between the Applicant, District and USEPA.

DATA REQUEST

26. Please provide all written project correspondence (including e-mails) that has occurred to date between the District or USEPA and the Applicant, and as it occurs between the District or USEPA and Applicant until the final commission

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decisionforthiscase.Pleaseincludecopiesofallpermitapplicationssubmitted totheDistrictandUSEPA.

Response: The applicant has provided and will continue to provide to the CEC copies of all written correspondence between the applicant and the District and/or the USEPA. Copies of the permit applications submitted to the District and the USEPA have already been provided.

BACKGROUND

Theauxiliaryboilermaximumannualemissionsarebasedon3,000hoursperyearof operation(AFCpg.8.1-27).

DATA REQUEST

27. Pleaseidentifywhytheauxiliaryboilerwillberequiredtooperateasmanyas 3,000hoursperyear.

Response: The primary purpose of the auxiliary boiler is to provide steam to keep the HRSGs hot when the turbines are offline (HP steam drum warming, to reduce startup times), for condenser hotwell warming, steam turbine gland steam sealing and sparging steam for freeze protection when the plant is offline. While the turbines are expected to have an overall annual availability of 92 to 98 percent, the facility as a merchant plant will operate in accordance with electrical demand. Therefore, the plant must be designed to accommodate some periods of turbine shutdown. The auxiliary boiler may be needed to provide auxiliary steam for up to 3000 hours per year. Drum warming typically is initiated around 10 to 12 hours after shutdown.

BACKGROUND

Theairdispersionmodelinganalysisshowsthattheproject'sPM₁₀impactswouldadd toabackgroundairqualityconditionthat isalreadysevere,withviolationsofthestate andfederal24-hourPM₁₀ambientairqualitystandards.Thoseimpactsalsoindicate thatundercertainmeteorologicalconditions,PM₁₀impactswouldoccuratthetownof SanJoaquin.ThePM₁₀mitigationproposalisacombinationofPM₁₀andSO₂emission reductioncredits(ERCs)locatedwithintheboundariesoftheSanJoaquinValleyAir District,butnonearenearthepotentialPM₁₀impactareas.Staffisconcernedthata disproportionatePM₁₀impactcanoccuronthecommunityofSanJoaquinandthatthe mitigationproposedmaynotadequatelymitigatethisimpact.

DATA REQUEST

28. Pleasedescribewhatthe ERCsproposedforthisprojectadequatelymitigate

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the PM₁₀ and associated health impacts to the residents of the town of San Joaquin. There needs to be a clear connection or nexus between the project's PM₁₀ impacts and the use of ERCs as mitigation and how the use of such ERCs adequately mitigates a localized impact.

Response: PM₁₀ impacts from the project have been minimized through project design and the use of natural gas fuel, so the primary means of mitigating localized air quality impacts is through project design. Maximum modeled PM₁₀ impacts from the project are below PSD significance thresholds for both 24-hour and annual average impacts, indicating that these impacts are not significant from a health-based, air quality regulatory perspective. However, regardless of the modeled impacts, SJVUAPCD regulations require the PM₁₀ emissions from the project to be offset. The Applicant is proposing to provide a combination of PM₁₀ and PM₁₀ precursor emission reduction credits as offsets for these emission increases.

PM₁₀ is a regional pollutant and the ambient PM₁₀ in the project area comes from many sources. Some of the PM₁₀ is directly emitted, while some is formed through secondary atmospheric reactions of pollutants emitted many miles away. The SJVUAPCD has determined that reductions in PM₁₀ emissions and precursors throughout the District benefit air quality within the District and therefore allows ERCs anywhere in the District to be used to offset emissions increases. These regional reductions in PM₁₀ and PM₁₀ precursors will contribute to overall reductions in ambient PM₁₀ concentrations throughout the District as well as in the project area, furthering the goal of bringing the District into attainment with the federal PM₁₀ standard.

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AttachmentAQ-4

ListandDescriptionofAirQualityModelingFiles

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From: Carrier, John/SAC[jcarrier@CH2M.com]
Sent: Monday, November 05, 2001 5:12 PM
To: Keith Golden (E-mail); 'Walters@aspeneg.com'
Cc: Mathew Trask (E-mail); Nancy Matthews (E-mail)
Subject: FW: CVEC modeling file list

Nancy Matthews just sent me the attached file that provides a list of the modeling files on the Air Modeling CD that was filed with the AFC. If you have any questions, please give Nancy or I a call.

John L. Carrier, J.D.
916/920-0212x224
916/996-9349 CELL
916/614-3424 FAX

-----Original Message-----

From: Nancy Matthews [mailto:NMatthews@SierraResearch.com]
Sent: November 05, 2001 4:33 PM
To: Carrier, John/SAC
Cc: Nancy Matthews
Subject: CVEC modeling file list

Here is a copy of the list of modeling files for the CVEC AFC. We never decided exactly what to do with it, but if you want me to file it, let me know.

Thanks!

<<modelingfiledescriptions.doc>>

Nancy

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MODELINGFILES:CENTRALVALLEYENERGYCENTERAFC		
InputFilename	OutputFilename	Description
CO1HR.IN	CO1HR.OUT	COcoarseand downwashgridmodelrun1-houraveraging
CO8HR.IN	CO8HR.OUT	COcoarseand downwashgridmodelrun8-houraveraging
CO1STRT.IN	CO1STRT.OUT	COcoarseand downwashgrids1-hourstartup
NO21HR.IN	NO21HR.OUT	NO ₂ coarseand downwashgridmodelrun1-houraveragingozonelimited
NOXAN92.IN	NOXAN92.OUT	NO _x coarseand downwashgridmodelrunannualaveraging1992
NOXAN93.IN	NOXAN93.OUT	NO _x coarseand downwashgridmodelrunannualaveraging1993
NOXAN94.IN	NOXAN94.OUT	NO _x coarseand downwashgridmodelrunannualaveraging1994
NOXAN95.IN	NOXAN95.OUT	NO _x coarseand downwashgridmodelrunannualaveraging1995
NOXAN97.IN	NOXAN97.OUT	NO _x coarseand downwashgridmodelrunannualaveraging1997
NO2COMM.IN	NO2COMM.OUT	NO ₂ turbinecommissioningozonelimited1-houraveragingreceptorcoarse and downwashgridscombined
NOXSTRT.IN	NOXSTRT.OUT	Turbinestartup NO _x 1-houraveragingcoarseand downwashgridsozone limited
SO21STRT.IN	SO21STRT.OUT	TurbinestartupSO ₂ 1-houraveragingcoarseand downwashgrids
CON92.INP	CON92.OUT	Constructionimpacts1992annualaveragingcoarseand downwashgridsall pollutantsproratedasCHI/Q
CON93.INP	CON93.OUT	Constructionimpacts1993annualaveragingcoarseand downwashgridsall pollutantsproratedasCHI/Q
CON94.INP	CON94.OUT	Constructionimpacts1994annualaveragingcoarseand downwashgridsall pollutantsproratedasCHI/Q
CON95.INP	CON95.OUT	Constructionimpacts1995annualaveragingcoarseand downwashgridsall pollutantsproratedasCHI/Q
CON97.INP	CON97.OUT	Constructionimpacts1997annualaveragingcoarseand downwashgridsall pollutantsproratedasCHI/Q
CONST.INP	CONST.OUT	Constructionimpactsshort-termaveraging(1,3,8,24hour)coarseand downwashgridsallpollutantsproratedasCHI/Q
PM24HR.IN	PM24HR.OUT	PM ₁₀ coarseand downwashgridmodelrun24-houraveraging
PMAN92.IN	PMAN92.OUT	PM ₁₀ coarseand downwashgridmodelrunannualaveraging1992
PMAN93.IN	PMAN93.OUT	PM ₁₀ coarseand downwashgridmodelrunannualaveraging1993
PMAN94.IN	PMAN94.OUT	PM ₁₀ coarseand downwashgridmodelrunannualaveraging1994
PMAN95.IN	PMAN95.OUT	PM ₁₀ coarseand downwashgridmodelrunannualaveraging1995
PMAN97.IN	PMAN97.OUT	PM ₁₀ coarseand downwashgridmodelrunannualaveraging1997
SO21HR.IN	SO21HR.OUT	SO ₂ coarseand downwashgridmodelrun1-houraveraging
SO21STRT.IN	SO21STRT.OUT	SO ₂ coarseandrefinedgridmodelrun1-houraveragingforstartup emissions
SO23HR.IN	SO23HR.OUT	SO ₂ coarseand downwashgridmodelrun3-houraveraging
SO24HR.IN	SO24HR.OUT	SO ₂ coarseand downwashgridmodelrun24-houraveraging
SO2AN92.IN	SO2AN92.OUT	SO ₂ coarseand downwashgridmodelrunannualaveraging1992
SO2AN93.IN	SO2AN93.OUT	SO ₂ coarseand downwashgridmodelrunannualaveraging1993
SO2AN94.IN	SO2AN94.OUT	SO ₂ coarseand downwashgridmodelrunannualaveraging1994
SO2AN95.IN	SO2AN95.OUT	SO ₂ coarseand downwashgridmodelrunannualaveraging1995
SO2AN97.IN	SO2AN97.OUT	SO ₂ coarseand downwashgridmodelrunannualaveraging1997
PINNACLES.INP	PINNACLES.OUT	CALPUFfilesforPinnaclesClassIIImpacts

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

MODELINGFILES:CENTRALVALLEYENERGYCENTERAFC		
InputFilename	OutputFilename	Description
PINVIS.INP	PINVIS.LST	CALPOSTinput/outputfilesforvisibilityassessmentforPinnacles
SCRN92.IN	SCRN92.OUT	Turbinescreeningcasesannualaveragesfor1992
SCRN93.IN	SCRN93.OUT	Turbinescreeningcasesannualaveragesfor1993
SCRN94.IN	SCRN94.OUT	Turbinescreeningcasesannualaveragesfor1994
SCRN95.IN	SCRN95.OUT	Turbinescreeningcasesannualaveragesfor1995
SCRN97.IN	SCRN97.OUT	Turbinescreeningcasesannualaveragesfor1997
SCRN-T.IN	SCRN-T.OUT	Turbinescreeningforshort-termaveragesallyears
AUX92.IN	AUX92.OUT	Emergencyequipmentscreening(firepump/emergencygenerator)for1992
AUX93.IN	AUX93.OUT	Emergencyequipmentscreening(firepump/emergencygenerator)for1993
AUX94.IN	AUX94.OUT	Emergencyequipmentscreening(firepump/emergencygenerator)for1994
AUX95.IN	AUX95.OUT	Emergencyequipmentscreening(firepump/emergencygenerator)for1995
AUX97.IN	AUX97.OUT	Emergencyequipmentscreening(firepump/emergencygenerator)for1997
AC01HR.IN	AC01HR.OUT	HRAmodelingacuteimpactsforallyears
CCAN92.IN	CCAN92.OUT	CancerHRA1992
CCAN93.IN	CCAN93.OUT	CancerHRA1993
CCAN94.IN	CCAN94.OUT	CancerHRA1994
CCAN95.IN	CCAN95.OUT	CancerHRA1995
CCAN97.IN	CCAN97.OUT	CancerHRA1997
CIAN92.IN	CIAN92.OUT	ChronicInhalationHRA1992
CIAN93.IN	CIAN93.OUT	ChronicInhalationHRA1993
CIAN94.IN	CIAN94.OUT	ChronicInhalationHRA1994
CIAN95.IN	CIAN95.OUT	ChronicInhalationHRA1995
CIAN97.IN	CIAN97.OUT	ChronicInhalationHRA1997
CNAN92.IN	CNAN92.OUT	ChronicNon-InhalationHRA1992
CNAN93.IN	CNAN93.OUT	ChronicNon-InhalationHRA1993
CNAN94.IN	CNAN94.OUT	ChronicNon-InhalationHRA1994
CNAN95.IN	CNAN95.OUT	ChronicNon-InhalationHRA1995
CNAN97.IN	CNAN97.OUT	ChronicNon-InhalationHRA1997

METEOROLOGICALANDOZONEDATAFILES: CENTRALVALLEYENERGYCENTERAFC	
FileName	Description
O3FIL.ASC	HourlyozonedataforuseinozonelimitingmethodwithISC3OLM
LE92.ASC	Hourly1992meteorologicaldataforusewithISCST3
LE93.ASC	Hourly1993meteorologicaldataforusewithISCST3
LE94.ASC	Hourly1994meteorologicaldataforusewithISCST3
LE95.ASC	Hourly1995meteorologicaldataforusewithISCST3
LE97.ASC	Hourly1997meteorologicaldataforusewithISCST3
LE92-97.ASC	HourlymeteorologicaldataforusewithISCST3short-termaveraging(allyears combined)andCALPUFF

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

Note:NOXANN.INandNOXANN.OUTareoutdatedtemplatefilesthatwerenotusedinthemodeling analysisandshouldbeignored.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-13

**CopiesofCorrespondencewithUSEPARegionIX
Regarding2.0 ppm NOxLimit**



**sierra
research**

1801 J Street
Sacramento, CA 95814
(916) 444-6666
Fax: (916) 444-8373

November 12, 2001

Regional Freedom of Information Officer
U.S. EPA, Region IX
75 Hawthorne Street (CGR-3-1)
San Francisco, CA 94105

Subject: FOIA Request
EPA Region IX Air and Toxics Division

Dear FOIA Officer:

Pursuant to the Freedom of Information Act (5 U.S.C. §552), please provide copies of all of the information that EPA possesses that indicates that a 2 ppm NOx level "has been consistently achieved in a Region IX facility" (UC San Diego), as indicated in EPA's October 25, 2001 letter to Mohsen Nazemi of the South Coast AQMD.

Thank you for your attention in this matter. Please bill Sierra Research for reasonable costs associated with assembling this material. Please call me at (916) 444-6666 with any questions regarding this request.

Sincerely,

Gary Rubenstein



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

December 10, 2001

Gary Rubenstein
Sierra Research
1801 J St.
Sacramento, CA 95814

Re: Freedom of Information Act Request RIN 00066-02

Dear Mr. Rubenstein,

This letter is in response to your Freedom of Information Act request dated November 12, 2001, regarding information that indicates that a NOx emission rate of 2.0 ppm has been achieved in practice at a Region 9 facility. The San Diego County Air Pollution Control District has informed EPA that it has data that indicates that a NOx emission rate of 2.0 ppm has been achieved in practice at the UC San Diego facility. However, EPA does not have this data, and cannot independently verify the emission level. In addition, EPA has CEMS data from the Sunlaw Cogeneration Partners facility in Vernon CA. EPA has not yet evaluated this data to determine whether it demonstrates that a NOx emission level of 2.0 ppm has been achieved at that facility.

If you have any further questions regarding this matter, please contact Roger Kohn of my staff at (415) 972-3973.

Sincerely,

A handwritten signature in black ink, appearing to read "Gerardo Rios", is written over the typed name.

Gerardo Rios
Chief, Permits Office
Air Division

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-15

CopiesofERCCertificates

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-17a

PM₁₀OffsetCalculationwithUSEPASanctions

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

SUMMARYOFTOTALPM₁₀OFFSETSREQUIREDANDAVAILABLE
WITHUSEPAOFFSETSANCTION

Source	1 st Quarter (lbs/quarter)	2 nd Quarter (lbs/quarter)	3 rd Quarter (lbs/quarter)	4 th Quarter (lbs/quarter)
SO₂				
ProjectEmissions	10,908	10,908	10,908	10,908
OffsetThreshold	13,688	13,688	13,688	13,688
OffsetsRequired	0	0	0	0
<u>OffsetsAvailable:</u>				
N-270-5 ²	395,000	344,100	298,948	298,948
SO ₂ usedforPM ₁₀ at3.2:1 ³	(115,242)	(89,597)	(141,347)	(52,304)
OffsetSurplus(Shortfall)	279,758	254,503	157,601	246,644
PM₁₀				
ProjectEmissions	73,530	73,530	73,530	73,530
OffsetThreshold	7,300	7,300	7,300	7,300
EmissionsRequiredtobeOffset	66,230	66,230	66,230	66,230
OffsetsRequired(at2:1)	132,459	132,459	132,459	132,459
<u>OffsetsAvailable:</u> ¹				
N-208-4	715	8,177	6,581	715
C-347-4	50,845	67,976	8,408	42,056
N-217-4	302	308	4,900	391
N-255-4	0	0	52	0
S-1577-4	480	0	0	23,085
S-1578-4	421	0	176	46,954
S-1666-4	0	0	0	18,238
Subtotal	52,763	76,461	20,117	131,439
FourthQuarterAERUsedinOther Quarters(perRule2210.4.13.7).	7,670	0	24,000	(31,670)
InterpollutantOffsets (fromSO ₂ at3.2:1) ³	72,026	55,998	88,342	32,690
TotalOffsetsAvailable	132,459	132,459	132,459	132,459
OffsetSurplus(Shortfall)	0	0	0	0

Note1:Certificatesownedbyandregisteredto Calpine.

2. Certificatenowownedby Calpinebutstillregisteredto Pastoria.Reflectsexcessovertime
requiredfor Pastoriaproject.

3. Seediscussionbelow.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

As discussed in data adequacy response 12-AQ-9, the SO₂:PM₁₀ interpollutant ratio calculation is as follows:

...the overall offset quantity required is equal to the sum of the amount being emitted and the excess amount(s) required due to the sanction ratio plus the excess amount due to the interpollutant offset ratio. The computation of the resulting overall SO_x for PM₁₀ offset ratio is as follows:

$$\begin{aligned}
 SO_x \text{ req'd ton/year} &= PM_{10} \text{ ton/year} * 2 + PM_{10} \text{ ton/year to be offset by } SO_x \text{ reductions} * \\
 &\quad 1.2 \\
 &= PM_{10} \text{ ton/year} * (2 + 1.2) \\
 &= PM_{10} \text{ ton/year} * 3.2
 \end{aligned}$$

In this equation, "PM₁₀ ton/year" is the amount of PM₁₀ being emitted, which is equivalent to the amount required to be offset. In the table above, the 1st quarter PM₁₀ emissions required to be offset are 66,230 pounds. These emissions can be offset using PM₁₀ ERCs at a ratio of 2:1 or SO₂ ERCs at a ratio of 3.2:1. The applicant is proposing to provide 52,763 pounds of direct, 1st quarter PM₁₀ offsets and 7,670 pounds of direct, 4th quarter PM₁₀ offsets, for a total of 60,433 pounds. As direct PM₁₀ offsets must be provided at a ratio of 2:1, these ERCs are adequate to offset 60,433/2, or 30,216 pounds of PM₁₀ emissions. The remaining 36,013 pounds of PM₁₀ emissions will be offset using SO₂ ERCs, at a ratio of 3.2:1. Therefore the quantity of SO₂ ERCs required to offset the remaining PM₁₀ emissions is 36,013*3.2, or 115,242 pounds.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-17b

PM₁₀OffsetCalculationwithoutUSEPASanctions

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

SUMMARYOFTOTALPM₁₀OFFSETSREQUIREDANDAVAILABLE
WTIHOUTUSEPAOFFSETSANCTION

Source	1 st Quarter (lbs/quarter)	2 nd Quarter (lbs/quarter)	3 rd Quarter (lbs/quarter)	4 th Quarter (lbs/quarter)
SO ₂				
ProjectEmissions	10,908	10,908	10,908	10,908
OffsetThreshold	13,688	13,688	13,688	13,688
OffsetsRequired	0	0	0	0
<u>OffsetsAvailable:</u>				
N-270-5 ²	395,000	344,100	298,948	298,948
SO ₂ usedforPM ₁₀ at2.7:1 ³	(83,848)	(41,191)	(84,841)	0
OffsetSurplus(Shortfall)	311,152	302,909	214,107	298,948
PM ₁₀				
ProjectEmissions	73,530	73,530	73,530	73,530
OffsetThreshold	7,300	7,300	7,300	7,300
EmissionsRequiredtobeOffset	66,230	66,230	66,230	66,230
OffsetsRequired(at1.5:1)	99,345	99,345	99,345	99,345
<u>OffsetsAvailable:</u> ¹				
N-208-4	715	8,177	6,581	715
C-347-4	50,845	67,976	8,408	42,056
N-217-4	302	308	4,900	391
N-255-4	0	0	52	0
S-1577-4	480	0	0	23,085
S-1578-4	421	0	176	46,954
S-1666-4	0	0	0	18,238
Subtotal	52,763	76,461	20,117	131,439
FourthQuarterAERUsedinOther Quarters(perRule2210.4.13.7).	0	0	32,094	(32,094)
InterpollutantOffsets (fromSO ₂ at2.7:1) ³	46,582	22,884	47,134	32,690
TotalOffsetsAvailable	99,345	99,345	99,345	99,345
OffsetSurplus(Shortfall)	0	0	0	0

Note1:Certificatesownedbyandregisteredto Calpine.

2. Certificatenowownedby Calpinebutstillregisteredto Pastoria.Reflectsexcessovertimequantity requiredfor Pastoriaproject.
3. Seediscussionbelow.

**Central Valley Energy Center
(01-AFC-22)
Data Response, Set 1A**

As discussed in the interpollutant ratios submittal, the SO₂:PM₁₀ interpollutant ratio calculation is as follows:

...the overall offset quantity required is equal to the sum of the amount being emitted and the excess amount(s) required due to the distance ratio plus the excess amount due to the interpollutant offset ratio. The computation of the resulting overall SO_x for PM₁₀ offset ratio is as follows:

$$\begin{aligned} \text{SO}_x \text{ req'd ton/year} &= \text{PM}_{10} \text{ ton/year} * 1.5 + \text{PM}_{10} \text{ ton/year to be offset by SO}_x \text{ reductions} \\ &\quad * 1.2 \\ &= \text{PM}_{10} \text{ ton/year} * (1.5 + 1.2) \\ &= \text{PM}_{10} \text{ ton/year} * 2.7 \end{aligned}$$

In this equation, "PM₁₀ ton/year" is the amount of PM₁₀ being emitted, which is equivalent to the amount required to be offset. In the table above, the 1st quarter PM₁₀ emissions required to be offset are 66,230 pounds. These emissions can be offset using PM₁₀ ERCs at a ratio of 1.5:1 or SO₂ ERCs at a ratio of 2.7:1. The applicant is proposing to provide 52,763 pounds of direct, 1st quarter PM₁₀ offsets. As direct PM₁₀ offsets must be provided at a ratio of 1.5:1, these ERCs are adequate to offset 52,763/1.5, or 35,175 pounds of PM₁₀ emissions. The remaining 31,055 pounds of PM₁₀ emissions will be offset using SO₂ ERCs, at a ratio of 2.7:1. Therefore the quantity of SO₂ ERCs required to offset the remaining PM₁₀ emissions is 31,055*2.7, or 83,848 pounds.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-21

ExplanationofGasTurbine/HRSGCommissioningProfile

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-24

CalculationBasisforCommissioningEmissionsCalculations

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

Notes:

- (1) HoursofOperation-basedoninformationsuppliedby Calpine.
- (2) FuelUse
- NoLoadtest:Basedoninformationsuppliedby Calpine.
 - 60%Loadtest:Basedon60%loadfuelusefora501Fmachineduringa36 deg.Fday.
 - FullLoadtests:Basedon baseloadfuelusefora501Fmachineduringa36 deg.Fday.
- (3) NOxEmissionFactors
- NoLoadtest:BasedoninformationsuppliedforaGE7FAMachine.
 - 60%Loadtest:Basedon Calpine-suppliedS-Wperformancerunona501Fmachine witha NOxemissionlevelof25 ppm@15%O₂.
 - FullLoadNoSCRtest:Basedon CalpinesuppliedS-Wperformancerunwith NOx levelsof25 ppm@15%O₂for501Fmachine.
 - FullLoadPartialSCRtest:Basedoninformationsuppliedby Calpinewith NOxemission levelsatthemidwaypointbetween25 ppmand2.5 ppm@15%O₂.
 - FullLoadFullSCRtest:Basedonunitmeetingtheprojectdesign NOxemissionlevelof 2.5 ppm@15%O₂.
 - HotStartups:Basedonmaximum NOxemissionlevelexpectedduringhotstartups.
- (4) COEmissionFactors
- NoLoadtest:Basedoninformationsuppliedby CalpineforaGE7FAMachinewithCO emissionsof180 lbs/hr.
 - 60%Loadtest:BasedonthecommissioningCOemissionlevelusedforaGE7FA machineatthe CrockettplantwithaCOemissionlevelof385 lbs/hr.
 - FullLoadNoSCRtest:Basedon CalpinesuppliedS-Wperformancerunsfora501F machinewithCOlevelsof10 ppmvd@actual%O₂.
 - FullLoadPartialSCRtest:Basedonunitmeetingtheprojectdesignlevelof6 ppm@ 15%O₂withoxidationcatalystinstalledandoperating.
 - FullLoadFullSCRtest:Basedonunitmeetingtheprojectdesignlevelof6 ppm@15% O₂withoxidationcatalystinstalledandoperating.
 - HotStartups:BasedonmaximumCOemissionlevelexpectedduringhotstartups.
- (5) VOC EmissionFactors
- NoLoadtest:Basedoninformationsuppliedby CalpineforaGE7FAMachinewith VOCemissionsof17 lbs/hr.
 - 60%Loadtest:BasedontheexpectedstartupVOCemissionlevelof16 lbs/hr.
 - FullLoadNoSCRtest:Basedon CalpinesuppliedS-Wperformancerunsfora501F machinewithVOClevelsof1.4 ppmvw@actual%O₂.
 - FullLoadPartialSCRtest:Basedon CalpinesuppliedS-Wperformancerunsfora501F machinewithVOClevelsof1.4 ppmvw@actual%O₂.
 - FullLoadFullSCRtest:Basedon CalpinesuppliedS-Wperformancerunsfora501F machinewithVOClevelsof1.4 ppmvw@actual%O₂.
 - HotStartups:BasedonmaximumVOCemissionlevelof16 lbs/hrexpectedduringhot startups.
- (6) PM₁₀ EmissionFactors
- Foralltestsexcepthotstartups,basedonprojectdesignPM₁₀levelof9 lbs/hr."
 - Forhotstartups,basedonmaximumexpectedPM₁₀levelduringfullloadoperationwith ductburneroperation(i.e.,11.5 lbs/hr).
- (7) SO_x EmissionFactors
- Foralltestsexcepthotstartups,basedonprojectdesignmaximumnaturalgassulfur contentof0.25gr/100 scf.

CentralValleyEnergyCenter
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DataResponse,Set1A

-For hot startups, based on maximum expected SOx emission level during full load
operation with duct burner operation (i.e., 1.84 lbs/hr).

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

AttachmentAQ-25

CertificationofComplianceforMajorFacilitiesinCalifornia

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

TechnicalArea:Alternatives

CECAuthor: SusanLee,Rebecca Morgenstern

CPPAuthor: JohnCarrierandEJ Koford

BACKGROUND

IntheAFC,theApplicantpresentsfivesitesconsideredasalternativestotheCVEC. Staffneedsmoreinformationonthosealternativesitesinordertocomplywith CEQA's requirementforalternativesanalysis.AlthoughtheAFCprovidesasummarytable (Table9.2-2)oftheimpacts thatwouldresultfromlocatingtheCVECatthealternative sitelocations,thespecificalternativesitelocationsarenotclearandadditional informationisneeded.AmapisincludedintheAFC(Figure9.2-1),butthecountyline areincorrect(MaderaCountydoesnotborderSanJoaquinCounty)andtheproposed projectlocationandthespecificlocationofthealternativesitesarenotidentified.

DATA REQUEST

29. Section9.2–Describethe locationsofthefivealternativesitespresentedin Section9oftheAFC.Pleasestatetheexactlocationofthefivealternativesites presentedintheAFCincludingtheaddressorcrossstreets.Also,include the sizeoftheparcel(inacres),zoningdesignation,currentuse,andanyspecified uses(suchasWilliamsonAct)oftheparcel.

Response: CEQA requires an analysis of alternatives; however, consistent with both CEQA and the Commission's prior analyses, the alternatives analysis identifies and compares the impacts of the various alternatives but in less detail than the proposed project.CEQA requires the description of a reasonable range of feasible alternatives to the project or project location that could feasibly attain most of the project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project. The alternatives analysis for CVEC must include sufficient information about each alternative to allow meaningful evaluation, analysis and comparison with the proposed project. A matrix may be used to summarize the comparison. To the extent that such information is reasonably available, the approximate locations of the sites considered are identified on the topographic maps provided in response to Data Request #30. The approximate size of the parcel needed for a power plant the size of CVEC is 30 acres (not including the temporary construction laydown area). The zoning and land use designations as well as the current use of the parcel are provided in Table Alt-29.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

Table Alt-29
Land Use Features of Proposed Alternative Sites

AlternativeSite	GeneralPlan	Zoning	CurrentUse
HerndonSubstation ¹	Agriculture	ExclusiveAgriculture20 (AE20)	Openspace/former agriculture
KearneySubstation	Agriculture	ExclusiveAgriculture20 (AE20)	Agriculture
McCallSubstation	Agriculture	ExclusiveAgriculture20 (AE20)	Agriculture
HelmSubstation ²	Agriculture	ExclusiveAgriculture20 (AE20)	Agriculture
PanocheSubstation	Agriculture	ExclusiveAgriculture20 (AE20)	Agriculture

¹This site is referred to as Gregg Substation in the AFC.

²This site is referred to as San Joaquin South Energy Center in the AFC.

30. Please provide a detailed map (preferably on a topographic base) for the five alternative sites presented in the AFC and showing the proposed site location. The map should identify the exact location of each parcel, with the parcel size and shape illustrated on the map. Also, for each site, show the routes for the transmission line, water supply line and the natural gas pipeline. In addition, please include county lines, major waterways, transmission lines, railroads and major roadways.

Response: Topographic maps showing the locations of the five alternative sites are presented in Figures Alt-30a to 30e.

31. For each alternative site, state the lengths (in feet or tenths of miles) for the transmission line, water supply line and the natural gas pipeline.

Response: The approximate length of the various linears is provided in Table Alt-31. It should be noted that the gas line that feeds Fresno does not have sufficient capacity to supply CVEC. Therefore, gas would need to be supplied from a major gas transmission line near I-5. The location of the linear routes used for this analysis is presented in Figures Alt-31a to 31c.

**CentralValleyEnergyCenter
(01-AFC-22)
DataResponse,Set1A**

TABLE ALT-31
Length of Various Linears

AlternativeSite	TransmissionLine	GasLine	WaterLine
KearneySubstation	~500feet	~46.4miles	~4.25miles
PanocheSubstation	~1,500feet	~1,000feet	~46.4miles
McCallSubstation	~500feet	~49.50miles	~21.25miles
HelmSubstation(HelmSouth)	~375feet	~20.5miles	~20.3miles
HerndonSubstation ¹	~1,625feet	~47.25miles	~11.50miles

¹This site is referred to as Gregg Substation in the AFC.

32. For each alternative site, state the distance (in feet or tenths of miles) to the nearest residences or sensitive receptors (for example hospitals or schools), and the location of those receptors.

Response: The closest residence to the various alternative sites is presented in Table Alt-32. Other sensitive receptors were not identified during the field survey.

TABLE ALT-32
Nearest Sensitive Receptors

AlternativeSite	ClosestResidence	OtherReceptors/distance
KearneySubstation	1,100feet	Nothing within 1 mile
PanocheSubstation	1,700feet	Nothing within 1 mile
McCallSubstation	600feet	Nothing within 1 mile
HelmSubstation(HelmSouth)	2,500feet	Library/4,500feet
HerndonSubstation ¹	1,000feet	Middle School/2,400feet Golf Course/200feet

¹This site is incorrectly referred to as Gregg Substation in the AFC.

33. For each alternative site, please provide an narrative description about the impacts for each resource described in Table 9.2-2. For example, why would the impacts to biological resources at the Panoche Alternative Site be greater than the proposed project?

Response: A summary description of the key resource areas is provided in the attached Table 9.2-2R, which has been revised from what was presented in the AFC to add more detail. The likelihood of impacts was compared among the various sites to determine which site would likely have the least impacts.

**Central Valley Energy Center
(01-AFC-22)
Data Response, Set 1A**

TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
Air Quality	Due to the purchase of offsets and implementation of proposed mitigation, impacts would be less-than-significant.	Emissions from the plant would be the same as the proposed location. It is assumed that offsets would be available for the Proposed Site. However, construction impacts would be higher since this site would require approximately 10 miles more pipeline construction. Nevertheless, air impacts would be expected to be insignificant.	Emissions from the plant would be the same as the proposed location. It is assumed that offsets would be available for the Proposed Site. However, construction impacts would be higher since this site would require approximately 5.7 miles more pipeline construction. Nevertheless, air impacts would be expected to be insignificant.	Emissions from the plant would be the same as the proposed location. It is assumed that offsets would be available for the Proposed Site. However, construction impacts would be higher since this site would require approximately 30 miles more pipeline construction. Nevertheless, air impacts would be expected to be insignificant.	Emissions from the plant would be the same as the proposed location. It is assumed that offsets would be available for the Proposed Site. Construction impacts would be the same. Therefore, air impacts would be expected to be insignificant.	Emissions from the plant would be the same as the proposed location. It is assumed that offsets would be available for the Proposed Site. However, construction impacts would be higher since this site would require approximately 18 miles more pipeline construction. Nevertheless, air impacts would be expected to be insignificant.
Biological Resources	The proposed site was selected in part because the site and linear support little or no natural vegetation that would support sensitive biological resources. Linear areas siting to follow road sides and to avoid areas of natural habitat. With implementation of proposed mitigation measures, impacts to biological resources would be mitigated to less-than-significant.	Impacts to the plant site would be similar to proposed site due to impacts from farming. Surrounding areas, however, are open grasslands and alfalfa fields that are more likely to be used by foraging raptors such as northern harrier and Swainson's hawk. Biological impacts are also expected to be slightly higher than the proposed site due to the approximately 10	The plant site is occupied primarily by orchards and is close to large areas of habitat west of I-5. Impacts to the plant site would be slightly greater than the proposed site due to impacts from farming. Project linear between Manning Avenue and the site include areas of grasslands and fallow fields that have greater biological value than intensively farmed areas.	The area south of McCall has been undeveloped for several years, and is now a sandysparse grasslands surrounded by developed and paved areas. It has greater biological value than an area that is regularly plowed and disked for cotton. Development in this area would have a greater potential to adversely impact biological resources. Biological impacts	Impacts to the plant site would be nearly the same as the proposed site due to impacts from intensive farming (corn). Development of the proposed site would create an "island" of open agricultural land between San Joaquin and the site, which isn't biologically desirable. The length of the linear corridors is the same for both sites. Therefore, it is anticipated that	Impacts from the plant site may be slightly greater than the proposed site since the area is no longer actively farmed and consists of an abandoned vineyard. In addition, there is the potential for a substantial effect to riparian habitat along San Joaquin River. Biological impacts are expected to be slightly higher than the proposed site due to the approximately 18

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
		miles longer linear that would need to be constructed. However, it is anticipated that impact to biological resources could be mitigated below the level of significance.	Biological impacts are expected to be slightly higher than the proposed site due to the approximately 5.7 miles longer linear that would need to be constructed. However, it is anticipated that impact to biological resources could be mitigated below the level of significance.	are also expected to be higher than the proposed site due to the approximately 30 miles longer linear that would need to be constructed. However, it is anticipated that impact to biological resources could be mitigated below the level of significance, but an alternative site would be more effective for avoiding impacts.	impact to biological resources would be the same as for the proposed site.	miles of longer linear that would need to be constructed. However, it is anticipated that impact to biological resources could be mitigated below the level of significance.
Cultural Resources	Cultural sensitivity is primarily along the gas line. However, with implementation of the proposed mitigation measures, impacts are expected to be less than significant.	A cultural resource search has not been performed for this site or the linear corridors. However, based on the additional 10 miles of linear corridors, this location may have greater cultural sensitivity. However, with implementation of appropriate mitigation measures, it is anticipated that cultural resources could be mitigated below the level of significance.	A cultural resource search has not been performed for this site or the linear corridors. However, based on the additional 5.7 miles of linear corridors, this location may have greater cultural sensitivity. However, with implementation of appropriate mitigation measures, it is anticipated that cultural resources could be mitigated below the level of significance.	A cultural resource search has not been performed for this site or the linear corridors. However, based on the additional 30 miles of linear corridors, this location may have greater cultural sensitivity. However, with implementation of appropriate mitigation measures, it is anticipated that cultural resources could be mitigated below the level of significance.	Same as proposed	A cultural resource search has not been performed for this site or the linear corridors. However, based on the additional 18 miles of linear corridors, this location may have greater cultural sensitivity. Also the proximity of the site to water makes it more likely that cultural resources may be encountered in this area. However, with implementation of appropriate mitigation measures,

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
Land Use	Site is zoned for industrial use. Fresno County requested that the plant be placed within a city. Nearest residence is 1,500 feet.	Would require rezoning from agriculture and a change in the General Plan. Would not meet County objective to be in a City. Would be located within the County. However, since it would be located adjacent to the existing sewage treatment plant, it would be compatible with surrounding uses. Nearest residence is about 1,110 feet away.	Would require rezoning from agriculture and a change in the General Plan. Would not meet County objective to be in a City. Only similar land use would be the nearby substation. Otherwise, it would be surrounded completely by agriculture uses. Closest residence is 1,700 feet away.	Would require rezoning from agriculture and a change in the General Plan. Would be located within a city. This part of town is a combination of industrial and agricultural uses. Compatibility is therefore better than the other alternative sites. However, residential land uses are very close at 600 feet.	Would require rezoning and change in the General Plan. Would not meet County objective to be in a City. Somewhat compatible with surrounding uses since industrial development is occurring to the northwest.	<p>it is anticipated that cultural resources could be mitigated below the level of significance.</p> <p>Would require rezoning and change in the General Plan. Would not meet County objective to be in a City. Surrounding uses include adjacent golf course. A middle school is presently under construction. Nearest residence is 1,000 feet away.</p>
Noise	Meets local LORS. Area is industrial, nearest residence is 1,500 feet away.	Plant's noise output would be approximately the same as the proposed site. However, nearest residence is about 1,100 feet.	Plant's noise output would be approximately the same as the proposed site. However, nearest residence is about 1,700 feet.	Plant's noise output would be approximately the same as the proposed site. However, nearest residence is about 600 feet.	Plant's noise output would be approximately the same as the proposed site. Nearest residence is about 2,500 feet.	Plant's noise output would be approximately the same as the proposed site. However, nearest residence is about 1,000 feet. In addition, would be located adjacent to a public golf course where noise sensitivity would be high.

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	ProposedSite	Kearney	Panoche	McCall	HelmSouth	Herndon
PublicHealth	Withproposed mitigation,Public Healthimpactswould beless-than-significant.	ThePublicHealth impactsareprimarily theresultofair qualityimpacts.The PublicHealthimpacts oftheplantwouldbe thesame.However, sincethe linearsare 10mileslonger, dieselemissonfrom constructionequip-mentwouldbe slightlyhigher.Inany case,PublicHealth impactsarenot anticipatedtobe significant.	ThePublicHealth impactsareprimarily theresultofair qualityimpacts.The PublicHealthimpacts oftheplantwouldbe thesame.However, sincethe linearsare 5.7mileslonger, dieselemissonfrom constructionequip-mentwouldbe slightlyhigher.Inany case,PublicHealth impactsarenot anticipatedtobe significant.	ThePublicHealth impactsareprimarily theresultofair qualityimpacts.The PublicHealthimpacts oftheplantwouldbe thesame.However, sincethe linearsare 30mileslonger, dieselemissonfrom constructionequip-mentwouldbe slightlyhigher.Inany case,PublicHealth impactsarenot anticipatedtobe significant.	ThePublicHealth impactsareprimarily theresultofair qualityimpacts.Since airqualityimpacts wouldbethesame asfortheproposed project,PublicHealth impactsarenot anticipatedtobe significant.	Potentialpublic Healthimpactswould primarilyresultfrom airqualityimpacts andbesimilarto thosefromthe proposedsite.The proximitytotheSan JoaquinRiverwould potentiallybeof concernforwater qualityalso. However,sincethe linearsare18miles longer,diesel emissionfrom constructionequip-mentwouldbe slightlyhigher.Inany case,PublicHealth impactsarenot anticipatedtobe significant.

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
Worker Health and Safety	Worker Health & Safety impacts primarily result from construction work. With implementation of the proposed mitigation measures, no significant impacts would result.	Worker Health & Safety impacts primarily result from construction work. Construction impacts would be the same for the plant at any location. However, since the line is about 10 miles longer there is a slight increase in worker impact over the proposed project. However, in any case, with implementation of the proposed mitigation measures, no significant impacts would result.	Worker Health & Safety impacts primarily result from construction work. Construction impacts would be the same for the plant at any location. However, since the line is about 5.7 miles longer there is a slight increase in worker impact over the proposed project. However, in any case, with implementation of the proposed mitigation measures, no significant impacts would result.	Worker Health & Safety impacts primarily result from construction work. Construction impacts would be the same for the plant at any location. However, since the line is about 30 miles longer there is a slight increase in worker impact over the proposed project. However, in any case, with implementation of the proposed mitigation measures, no significant impacts would result.	Worker Health & Safety impacts primarily result from construction work. At this location, construction impacts would be the same as the proposed plant and line. However, in any case, with implementation of the proposed mitigation measures, no significant impacts would result.	Worker Health & Safety impacts primarily result from construction work. Construction impacts would be the same for the plant at any location. However, since the line is about 18 miles longer there is a slight increase in worker impact over the proposed project. However, in any case, with implementation of the proposed mitigation measures, no significant impacts would result.
Socioeconomics	Potential impact to schools and public services. Potential benefit to Fresno from use of reclaimed water. Construction workforce would have to travel farther than sites closer to Fresno. Significant benefit to local municipality from increased tax base. With mitigation, adverse impacts would be less than	Potential impact to schools and public services. Potential benefit to Fresno from use of reclaimed water. Construction workforce would not have to travel far. Fiscal benefit to County not likely to be significant. With mitigation, adverse impacts would be less than significant.	Potential impact to schools and public services. Sanitary sewer not likely available. Domestic water would be supplied by wells. Potential benefit to Fresno from use of reclaimed water. Construction workforce would have to travel farther than sites closer to Fresno. Fiscal benefit to County not likely to be significant. With	Potential impact to schools and public services. Potential benefit to Fresno from use of reclaimed water. Construction workforce would not have to travel far. Fiscal benefit to community not likely to be significant. With mitigation, adverse impacts would be less than significant.	Same as proposed site except substantial road improvements would be required to Springfield Ave.	Potential impact to schools and public services. Potential benefit to Fresno from use of reclaimed water. Construction workforce would not have to travel far. Fiscal benefit to local government not likely to be significant. With mitigation, adverse impacts would be less than significant.

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
	significant.		mitigation, adverse impacts would be less than significant.			
Agriculture and Soils	Impacts to agricultural soils would be temporary from linear construction. Permanent removal of land would be the same in all cases. However, this site is zoned for industrial use.	Would represent small loss of agricultural uses in County from conversion of the plants to non-agricultural uses. Temporary impacts from construction of the line would be slightly more since line would be 10 miles longer.	Would represent small loss of agricultural uses in County from conversion of the plants to non-agricultural uses. Temporary impacts from construction of the line would be slightly more since line would be 5.7 miles longer.	Would represent small loss of agricultural uses in County from conversion of the plants to non-agricultural uses. Temporary impacts from construction of the line would be slightly more since line would be 30 miles longer.	Would represent small loss of agricultural uses in County from conversion of the plants to non-agricultural uses. Temporary impacts from construction of the line would be the same as the proposed site.	Would represent small loss of agricultural uses in County from conversion of the plants to non-agricultural uses. Temporary impacts from construction of the line would be slightly more since line would be 18 miles longer.
Traffic and Transportation	Potential impacts from construction workers having to cross the railroad tracks. No other hazardous intersections.	No hazardous intersections apparent.	No hazardous intersections apparent.	No hazardous intersections apparent.	Same as proposed, only construction workforce would likely cross the railroad tracks at Springfield Ave..	No hazardous intersections apparent.
Visual Resources	The plant would be located in an area zoned for industrial development. With mitigation measures impacts would be less than significant.	The plant would be located in an area adjacent to the wastewater treatment plant (low visual sensitivity). With mitigation measures, impacts would be less than significant.	The plant would be located near a huge substation, in a primarily agricultural area. Number of viewers are few. With mitigation measures, impacts would be less than significant.	The plant would be located in an area of substantial industrial development, a large substation and several transmission lines. With mitigation measures impacts would be less than significant.	Same as proposed project, except the area is not zoned for industrial development.	Although transmission lines crisscross the area, the plant would be adjacent to the golf course and area along the river where visual sensitivity would be high.

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
Hazardous Material Handling	Anhydrous ammonia would likely come from Stockton via I-5. This is a common route for anhydrous ammonia shipments to the area. With implementation of mitigation measures, impacts would be less than significant.	Anhydrous ammonia shipments would likely come down Highway 99, not as safe a route as I-5. As with the proposed site, the plant would be located in an area of low population density.	Same as proposed	Anhydrous ammonia shipments would likely come down Highway 99, not as safe a route as I-5. The population density near the plant would be higher than the proposed site.	Same as proposed	Anhydrous ammonia shipments would likely come down Highway 99, not as safe a route as I-5. The population density near the plant would be higher than the proposed site.
Waste Management	Wastes produced would be the same at every location. Distance to disposal sites would vary slightly between sites. This site would be closer to I-5 for disposal of hazardous wastes, but would be farther for disposal of non-hazardous wastes. With mitigation, impacts would be less than significant.	Wastes produced would be the same at every location. Distance to disposal sites would vary slightly between sites. This site would be farther to I-5 for disposal of hazardous wastes, but would be closer for disposal of non-hazardous wastes. With mitigation, impacts would be less than significant.	Same as proposed	Wastes produced would be the same at every location. Distance to disposal sites would vary slightly between sites. This site would be farther to I-5 for disposal of hazardous wastes, but would be closer for disposal of non-hazardous wastes. With mitigation, impacts would be less than significant.	Same as proposed	Wastes produced would be the same at every location. Distance to disposal sites would vary slightly between sites. This site would be farther to I-5 for disposal of hazardous wastes, but would be closer for disposal of non-hazardous wastes. With mitigation, impacts would be less than significant.
Water Resources	Would provide a benefit to the Fresno community from use of reclaimed water. With mitigation measures, impacts would be less than significant.	Same as proposed	Would provide a benefit to the Fresno community from use of reclaimed water. Source of domestic water would be from wells. With mitigation measures, impacts would be less than	Same as proposed	Same as proposed	Because this site is located close to the San Joaquin River, there is greater potential for impacts to surface water and potentially shallow groundwater resources from

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TABLE 9.2-2R
Comparison of Environmental Effects of Alternative Project Sites

Resource	Proposed Site	Kearney	Panoche	McCall	Helm South	Herndon
			significant			stormwater runoff. Impacts could probably be mitigated to a level of less than significant, but an alternative site would cause fewer impacts.
Geologic Hazards	Geologic hazards would be similar throughout the region. Therefore, with mitigation, impacts would be less than significant.	Same as proposed	Geologic hazards are slightly greater to the west as sites move closer to the tectonically active areas in the coastal foothills. However, these impacts can generally be mitigated by adapting construction standards according to the level of potential activity.	Same as proposed	Same as proposed	Generally similar to proposed, but potential for conflict with existing mineral resources becomes greater near the San Joaquin River, and on the eastern side of the County. However, these impacts could be substantially mitigated through careful linear siting and construction practices.
Paleontological Resources	Paleo impacts would be similar throughout the region. With mitigation, impacts would be less than significant.	Paleo impacts would be similar throughout the region. However, since the linears would be about 10 miles longer there is greater potential to affect paleo resources. However, with mitigation, impacts would be less than significant.	Paleo impacts would be similar throughout the region. However, since the linears would be about 5.7 miles longer there is greater potential to affect paleo resources. However, with mitigation, impacts would be less than significant.	Paleo impacts would be similar throughout the region. However, since the linears would be about 30 miles longer there is greater potential to affect paleo resources. However, with mitigation, impacts would be less than significant.	Same as proposed	Paleo impacts would be similar throughout the region. However, since the linears would be about 18 miles longer there is greater potential to affect paleo resources. However, with mitigation, impacts would be less than significant.

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FigureAlt-30a:HerndonSubstationAlternativeSiteandVicinity

FigureAlt-30b:KearneySubstationAlternativeSiteandVicinity

FigureAlt-30c: McCallSubstationAlternativeSiteandVicinity

FigureAlt-30d:HelmSubstationAlternativeSiteandVicinity

FigureAlt-30e:PanocheSubstationAlternativeSiteandVicinity

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FiguresAlt-31a-b:GasandWaterLineRoutesforAlternativeSites

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TechnicalArea:BiologicalResources

CECAuthor: Tom Scofield

CPPAuthorEJ Koford

BACKGROUND

The applicant has provided an outline for a Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) that describes how the biological resource mitigation measures would be implemented (Appendix 8.2D, Volume of the AFC). To determine if the proposed mitigation is suitable to reduce or minimize impacts to biological resources, staff needs to evaluate the specific mitigation measures that will be implemented prior to, during, and following construction activities at the CVEC.

DATA REQUEST

34. Please provide a Draft BRMIMP that identifies all potential impacts to sensitive biological resources resulting from the proposed project and include a complete description of all mitigation measures that the project owner would employ to avoid or minimize these impacts.

Response: Per our discussions with Staff, the BRMIMP will be provided to the CEC in a subsequent filing on March 11, 2002.

BACKGROUND

The applicant has indicated that worker environmental awareness training would be given to all construction personnel (p. 8.2-11, Volume of the AFC). Staff needs to evaluate the specific training procedures that construction personnel would receive to determine if the worker environmental awareness training effort will be adequate to help avoid and minimize potential construction-related impacts to sensitive biological resources.

DATA REQUEST

35. Please provide a draft Workers Awareness Training Plan that specifically describes the training procedures that would be implemented by the project owner to avoid or minimize impacts to sensitive biological resources in the CVEC project area.

Response: Per our discussions with Staff, the Worker Awareness Training Plan will be provided to the CEC in a subsequent filing on March 11, 2002.

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BACKGROUND

The applicant has indicated that “any wetlands crossed by the project linear would be avoided by trenchless technologies, or crossed in compliance with conditions specified by a Section 404 permit and Streambed Alteration Agreement, as appropriate” (p. 2, Draft Biological Assessment, Calpine, December 2001). The wetland areas identified include the California Aqueduct property, James Bypass, and Fresno Slough. The applicant has also indicated that “the project site and all the linear features are crossed, bordered or paralleled by irrigation ditches. These ditches both supply water to fields, and drain tailwater back to detention basins or to the canals and sloughs that lead to the Mendota Wildlife area, and from there, the San Joaquin River. Irrigation ditches are of all sizes—from the 100-foot-wide California aqueduct to 3-foot-wide ditches cut by the farmer’s plow. The ditches are generally kept clear of aquatic and riparian vegetation, and rarely support fishes because all but larger ditches are seasonally dry.” Staff is unclear whether any of the aforementioned ditches, irrigation canals, and drainages (other than the California Aqueduct, James Bypass, and Fresno Slough) are considered jurisdictional areas (under Corps jurisdiction).

DATA REQUEST

36. Please discuss whether any aquatic features (e.g., irrigation ditches, canals, and drainages), other than the California Aqueduct, James Bypass, and Fresno Slough are considered to be under the Corps jurisdiction. If additional wetlands occur in the project area, please provide staff with the location (map at 1:500 scale or larger), wetland type, and acreage of each wetland area, and a discussion of how the applicant proposes to construct in the vicinity of these locations. If applicable, please provide the location(s), habitat type(s), and acreage(s) of any and all areas that will require a Corps permit and/or a Streambed Alteration Agreement from CDFG. Please provide documentation from the appropriate agencies (Corps and/or CDFG) that a permit will, or will not be required. Please provide a permit schedule, if applicable.

Response: Other aquatic features that may be subject to United States Army Corps of Engineers (Corps) jurisdiction include an unnamed agricultural drainage pond along the gas pipeline route at Manning Avenue and San Diego Avenue, and the Beta Main Canal, located at Manning Avenue and Calaveras Avenue. In the case of the unnamed pond, there appears to be sufficient space to avoid the pond by locating the gas pipeline in upland areas between the edge of Manning Avenue and the edge of the pond. Similarly, pipeline installation in this area would not be subject to Corps jurisdiction. The gas pipeline would be installed underneath the Beta Main Canal using trenchless technology (i.e., HDD), so no Corps permit would be required. The locations and physical

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description of the potential wetland features were identified and discussed in the field with CEC staff on February 7, 2001.

No areas of the project have been identified as requiring a permit from the Corps. The Applicant is working with CDFG to provide the necessary information for obtaining a Streambed Alteration Agreement. This process is ongoing, with a preliminary response from CDFG anticipated by March 11, 2002. Since Streambed Alteration Agreements require a CEQA document, final execution of an Agreement may need to follow the CEC's Staff Assessment of the proposed project..

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TechnicalArea:CulturalResources

CECAuthor: Judy McKeehan

CPPAuthors: JimBard,Jim Sharpe

BACKGROUND

TheAFCAttachment12-CR-1identifieshistoricalresourceswithinone-halfmileofthe projectsitethatmaybemorethan45yearsoldandformsDPR-523AandFare provided.ItisnotclearfromthediscussioninFindingonpage3whethertheindustrial parkcitedasblockingtheviewofthepowerplantfacilitiesispresentlyexisting.Itisnot clearwhyhistoricbuildingsbytheintersectionofWestManningAvenueandColorado Roadandtwofarmcomplexeswithlargebarnslocatednorthwestoftheproposed facilityonWestSpringfieldAvenuewillnotbeimpacted.Ifthesesitesarewithinviewof theproposedfacilities,theymustfirstbeevaluatedtodeterminewhetherthe constructionofthepowerplantwouldhaveasignificantimpactonthesettingofeligible structures.Additionalinformationisneededtocompletethestaffanalysis.

DATA REQUEST

37. Ifitappearsthatanyculturalresourceswithinsightofthepowerplantmaybe affected,evaluatethem(CEQASection15064.5,(a),(3),(A),(B),(C),and(D)) foreligibilityfortheCaliforniaRegisterofHistoricalResources(CRHR)using additionalappropriateDPR523forms.

Response: A report detailing historic buildings and structures within the project area was provided to the CEC on December 21, 2001. The report included appropriate DPR 523 forms. However, additional forms were requested by CEC staff, so follow-up recording of features within the project area has been conducted. The final forms will be submitted to CEC by March 11, 2001.

38. Pleaseprovideanevaluationoftheeffectstheproposedprojectmayhaveonthe environmentalsettingofanyofeligiblestructures.

Response: The December 21, 2001 historic buildings and structures report evaluates the effects that the proposed project may have on the environmental setting of any eligible structures. Additional detail will be provided in the follow-up report on March 11, 2002, per our discussions with Staff..

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BACKGROUND

The confidential Appendix 8.3F does not include a complete list of technical reports for the resources identified for the proposed gas line alignment in Appendix 8.3C-2. Additional information is needed to complete the staff analysis.

DATA REQUEST

39. Please submit all cultural resource survey reports (technical reports) that provide the methods and results of all surveys conducted for this project. The methods section should indicate the width of each linear survey area.

Response: All cultural resource survey reports in our possession were provided to the CEC as a confidential appendix when the AFC was filed. Each report would contain its own section discussing the area surveyed. For the areas surveyed by CH2M HILL, the width of the corridor is indicated on the Confidential figure that was filed with the AFC. Generally, the corridor was surveyed to a width of 30 feet because permission to access private property could not be obtained. In addition, some areas that were not previously surveyed (the plant site, domestic water line and sanitary sewer line) are being surveyed this week. Survey results will be provided by March 11, 2002, per our discussions with Staff..

40. If the survey coverage was less than 100 feet for historic features and less than 200 feet for archaeological features on each side of the center line of the linear alignments, please provide a technical report documenting the additional surveys.

Response: See Data Response #39.

BACKGROUND

It appears from statements in the AFC and Appendix 8.3E that portions of the power plant site and domestic and sanitary sewer lines for the Central Valley Energy Center Project have not been surveyed.

DATA REQUEST

41. Please submit the technical reports documenting these surveys.

Response: See Data Response #39.

42. If cultural resources are present, please provide completed DPR 523 forms for the resources.

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Response: If cultural resources are present, DPR 523 forms will be provided on March 11.

43. If resource(s) exist and it appears that the resource(s) can be avoided, please indicate the measures that will be implemented to assure that the cultural resource(s) will not be impacted.

Response: That information will be provided on March 11, 2002, per our discussions with Staff..

44. If it is not possible to avoid the cultural resource(s), please provide an evaluation of the eligibility of the site(s) for the California Register of Historical Resources (CEQA Section 15064.5, (a), (3), (A), (B), (C), and (D)).

Response: That information will be provided on March 11, 2002, per our discussions with Staff..

BACKGROUND

It appears from Appendix 8.3C that the width of surveys changes at various points along the linear route. It cannot be determined whether all surveys were completed to an adequate width on each side of the linear alignment. Staff needs this information to complete the analysis.

DATA REQUEST

45. Please identify the exact location of surveys and indicate whether surveys were completed to a minimum of 200 feet on each side of the linear alignment.

Response: See Data Response #39. Along most of the linear surveys were about 30 feet wide since permission to enter private property could not be obtained.

46. Provide the dimensions of the proposed area of direct or indirect impacts for the project site and linears.

Response: The Horizontal Directional Drilling (HDD) will require entry pits about 200 feet x 200 feet and exit pits of approximately 50 feet x 100 feet. The gas and water pipeline trenches will generally be about 6 feet across, and approximately 7.5 feet deep. However, the contractor may need to adjust this size based on construction practices and soil types. The general width of the construction area along the gas and water lines as well as the domestic water and sanitary sewer lines will be about 70 feet across.

The current plant footprint is 30 acres, including the stormwater detention basin. The construction laydown area will be approximately 30 acres.

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47. Please determine whether any areas easy to be surveyed would be used as pipe or equipment staging and laydown areas or for parking or other purposes. If areas outside the pipeline easement are required, please provide the results of a cultural resources survey for these areas.

Response: Pipeline and equipment staging areas will be confined to the pipeline construction impact area.

48. If cultural resources are present, please provide completed DPR 523 forms for the resources.

Response: Per our discussions with Staff, the forms will be submitted by March 11, 2002 if additional resources are identified.

49. If resource(s) exist and it appears that the resource(s) can be avoided, please indicate the measures that would be implemented to assure that the cultural resource(s) will not be impacted.

Response: We will provide mitigation plans to avoid or reduce impacts, as applicable.

50. If it is not possible to avoid the cultural resource(s), please provide an evaluation of the eligibility of the (se) site(s) for the California Register of Historical Resources (CEQA Section 15064.5, (a), (3), (A), (B), (C), and (D)).

Response: We will do so if such circumstances arise.

BACKGROUND

The discussion of cumulative impacts in the AFC does not provide any information on other projects in the area that could impact cultural resources. The discussion of cumulative impacts should consider such other projects. Additional information is needed to complete the staff analysis.

DATA REQUEST

51. Please provide a discussion of other projects (in permitting or currently under construction) within a one-mile radius of the Central Valley Energy Center project, and provide a discussion of the cumulative impacts relevant to those projects.

Response: Sections 8.4.4, 8.4.5 and 8.4.7 discuss on-going and future growth trends, recent discretionary reviews and potential cumulative impacts associated with other construction activities in the vicinity of the project. The City of San Joaquin intends to approve development and construction projects consistent with the general plan, but construction scheduling for planned improvements have not been determined by the City. Future construction in the vicinity may

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have an adverse effect on cultural resources, if such resources are present in the area(s) subject to disturbance by the future construction projects. It is anticipated, however, that future development projects will be subject to CEQA or counterpart federal regulations (if applicable) that will require cultural resource impact review. Such reviews would disclose project impacts on cultural resources and such impacts would be mitigated prior to construction. Such environmental review processes work to reduce cumulative impacts to cultural resources to a minimum. Long-term cumulative impacts to cultural resources from natural forces (erosion, deflation, etc.) cannot be avoided but long-term cumulative impacts to cultural resources can be reduced by stringent application of existing regulations designed to identify and protect cultural resources during pre-project permitting.

BACKGROUND

Attachment 12-CR-4 dated December 18, 2001, indicates that no responses from Native Americans had been received at that time.

DATA REQUEST

52. Please provide copies of responses from Native Americans, if any, that have been received since that date.

Response: No responses have been received to date.

BACKGROUND

In some cases, local historical and archaeological societies have knowledge of cultural resources in an area of a project that may not be available through normal record sources. Staff needs the following information to complete the analysis.

DATA REQUEST

53. Please inquire with any local historical and archaeological societies that might have knowledge of historical or archaeological resources in the area of the project. Please provide copies of the inquiry letters and any responses.

Response: Section 8.3.2.5.3 describes the local historical and archaeological societies contacted for the project. Additional contacts are being made as part of the architectural field surveys and analysis (by Tremaine and Associates). Results of these contacts will be provided to the CEC on March 11, 2002, per our discussions with Staff..

54. If any such resources are identified that could be affected by the project or could have their immediate surroundings altered (change in the integrity of the setting)

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by this project in such a manner that the significance of the historical resource would be materially impaired, and they have not been recorded on a DPR523 form, then please record the cultural resources on the DPR523 form and provide a copy of the form.

Response: Refer to Data Response #37.

55. If any of the resources could be affected by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, please provide a discussion of the significance of the resources under CEQA Section 15064.5(a), (3), (A)(B)(C) and (D) and provide staff with a copy of the assessment and the specialist's conclusions regarding the significance.

Response: Refer to Data Response #37.

BACKGROUND

Cultural resources that are on lists created by local jurisdictions and could qualify as historical resources, and could be affected by the project, must be considered in the analysis. Staff needs the following information to complete the analysis.

DATA REQUEST

56. Please provide copies of local lists of important cultural or historic resources designated by a local ordinance by the city of San Joaquin or Fresno County.

Response: None of the important cultural or historic resources designated by the City of San Joaquin or Fresno County are near any of the areas impacted by the project.

57. If any of these resources could be affected by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, then please provide a copy of the requirements used by the local jurisdiction to qualify for the listing.

Response: None of the resources would have their immediate surroundings impacted. Refer to response #37.

58. If any of the resources could be affected by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired and they have not been recorded on a DPR523 form, then please record such cultural resources on DPR523 forms and provide a copy of the forms.

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Response: Refer to Data Response #37.

59. If any of the resources could be affected by the project or could have their immediate surroundings altered (change in the integrity of setting) by this project in such a manner that the significance of the historical resource would be materially impaired, please provide a discussion of the significance of the resources under CEQA Section 15064.5, (a), (3), (A)(B)(C)&(D) and provide staff with a copy of the assessment and the specialist's conclusions regarding significance.

Response: Refer to Data Response #37.

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TechnicalArea:Geology

CECAuthor :Dr.PatrickPilling, P.E., G.E.

CPPAuthor: Tom Lae

BACKGROUND

Section8.15.3.4.8statesthatMineralResourceZones(MRZs)existwithin1mileofthe site;however,nomaphasbeenprovidedintheAFCdepictingitslocationwithrespect tothesite.

DATA REQUEST

60. Pleaseprovideamapatascaleof1:24,000depicting MRZsneartheproposed plantsiteandassociatedlinearfacilities.

Response: The statement in Section 8.15.3.4.8 of the AFC is in error. The correct statement is: "No Mineral Resource Zones (MRZs) as defined by the California Department of Conservation ~~the area~~ are within the vicinity of the project site or linears." Because no MRZs would be affected by the project, and are greater than 1 mile from the site or ¼ mile from the linears, it is not necessary to provide a map depicting MRZs.

BACKGROUND

Section8.15.3.4.9statesthattheoilfieldclosesttothesiteislocatedapproximately5 milestotheeastofthesite;however,theSanJoaquinQuadrangleshowsseveraloil wellsimmmediatelysouthofthesitealong DinubaAvenue.

DATA REQUEST

61. Pleaseincludetheoilwelllocationsonthe MRZsfigurerequestedaboveanda discussionofanypotentialimpactstheproposedprojectwouldhaveonthese wells,ifappropriate.

Response: Figure GEO-61, depicts oil fields and oil wells in the general project area. The information is based on data provided at the California Department of Conservation Oil and Gas Division Website. As shown, no oil fields exist within 1 mile of the project site. Two oil wells exist within approximately .5 mile and 1 mile of the project site. One oil well exists approximately 1.5 miles from the project site to the east. Neither the oil fields nor oils wells would be affected by the project.

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FigureGEO-61:OilFieldandWellLocations

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TechnicalArea:LandUse

CECAuthor :MichaelBerman

CPPAuthorKaty Carrasco

BACKGROUND

The project proposes linear facilities for natural gas supply that would be located mostly in roadway right-of-way through areas used for agricultural purposes (AFC Page 8.9-3 and 4). The AFC concludes that construction of these linear facilities would have less-than-significant impacts on agriculture but does not quantify the amount of agricultural land that would be disturbed by the construction of the pipeline (AFC Page 8.9-10). Recent site visits indicated that orchards and vineyards are located in close proximity to the linear facilities.

DATA REQUEST

62. Provide an estimate of the acreage of agricultural land by type of agriculture (e.g. orchards, vineyards, row crops, field crops, etc.) that would be disturbed during construction of the natural gas supply pipeline.

Response: The table below provides a conservative estimate of the affected acreage of agricultural land by type for the gas and water pipelines. In many instances, the affected acreage will be lower, due to use of non-cultivated field margins for pipeline installation and construction access. Since the pipelines will be installed below ground, with topsoil replaced, long-term effects to agricultural productivity will be temporary and minimal.

TABLE LU-62
Disturbance of Agricultural Land

Gas Pipeline	Miles	Acres
Roadway Edge	2.1	17.8
Orchard	0.5	4.2
Vineyard	0.0	0.0
Field Crop	17.4	147.6
Row Crop	0.0	0.0
Total Length	20.0	169.7

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TABLE LU-62
Disturbance of Agricultural Land

WaterPipeline	Miles	Acres
RoadwayEdge		0.0
Orchard	1.5	12.7
Vineyard	4.75	40.3
FieldCrop	14.75	125.2
RowCrop		0.0
TotalLength	21.0	178.2

BACKGROUND

The project proposes linear facilities for reclaimed water supply that would be located mostly in roadway right-of-way through areas used for agricultural purposes (AFC Page 8.9-3 and 4). The AFC concludes that construction of these linear facilities would have less-than-significant impacts on agriculture but does not quantify the amount of agricultural land that would be disturbed by the construction of the pipeline (AFC Page 8.9-10). Recent site visits indicated that orchards and vineyards are located in close proximity to the linear facilities.

DATA REQUEST

63. Provide an estimate of the acreage of agricultural land by type of agriculture (e.g. orchards, vineyards, row crops, field crops, etc.) and the amount of Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, and Farmlands of Local Importance that would be disturbed during construction of the reclaimed water supply pipeline. (Note that acreage of Prime Farmlands, et al., is requested here, but not in Data Request #1, because the gas pipeline goes through an area that is outside of the California Department of Conservation's farmland mapping area.)

Response: Please refer to Data Response #62, above, which includes the water pipeline information.

BACKGROUND

The project proposes an electrical transmission line through areas used for agricultural purposes (AFC Page 8.4-9). The AFC concludes that construction of these linear facilities would have less-than-significant impacts on agriculture but does not quantify

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the amount of agricultural land that would be disturbed by the construction of the transmission line.

DATA REQUEST

64. Provide an estimate of the acreage of agricultural land by type of agriculture (e.g. orchards, vineyards, row crops, field crops, etc.) and the amount of Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands, and Farmlands of Local Importance that would be disturbed during construction of the electrical transmission line.

Response: Depending on the construction techniques employed, less than 5.0 acres of agricultural land would be temporarily affected by transmission line installation. Less than 0.5 acres of agricultural land would be permanently affected by the monopole transmission towers themselves.

BACKGROUND

The AFC concludes that the construction of the reclaimed water pipeline, natural gas pipeline, and electrical transmission lines would not have significant impact on agricultural resources. The AFC does not indicate where in relation to the center line of the roadway right-of-way the water and gas pipelines would be located. Our field visit revealed that there are irrigation ditches, pumps and pipelines along the roadway rights-of-way that may be disturbed by the construction of the water and gas pipelines; it is unknown whether such facilities would be removed during the construction of the electrical transmission lines.

DATA REQUEST

65. Provide an estimate of amount of irrigation ditches, pumps, pipelines and other irrigation facilities that would be removed during construction of the project natural gas pipeline, reclaimed water supply line, and the electrical transmission line, indicating the general location of the facilities to be removed.

Response: As with all projects before the Commission at this stage, the precise locations of the pipelines and associated facilities on each property are currently being negotiated with the affected property owners in order to ensure that agricultural infrastructure is not disrupted. Calpine appreciates the Commission's sensitivity to these ongoing commercial negotiations. Thus far, no specific ditches, pumps, pipelines, or other irrigation facilities have been identified within the survey corridors that could be adversely affected. If any such disruptions were to occur during pipeline installation, the disruptions

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would be temporary, and service would be restored as quickly as possible, in consultation with the affected landowner.

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Technical Area: Socioeconomics

CEC Author: Daniel Gorfain

CPP Authors: Fatuma Yusuf and John Carrier

BACKGROUND

The AFC cites the County of Fresno General Plan among the LORS in Table 8.8-1, but not the City of San Joaquin General Plan.

DATA REQUEST

66. Please provide a copy of the City of San Joaquin General Plan including any amendments, as well as its Economic Development, and Public Facilities and Services Elements.

Response: A copy of the City of San Joaquin Comprehensive General Plan and EIR has been provided to the CEC on CD-ROM. The General Plan Amendment for Southeast Area Annexation has also been provided under separate cover to the CEC. Additional copies will be provided upon request.

BACKGROUND

Table 8.8-9 presents Fresno County Revenue and breaks down taxes into "Current Property" and "Other." The Table also shows "Projected FY 2001 Expenditures and Revenues."

DATA REQUEST

67. Please provide a breakdown of Sales and Hotel/Motel (or Transient) tax revenues for the years shown in this Table.

Response: Please see attached revised Table 8.8-9R for breakdown of sales tax. Fresno County does not assess Hotel/Motel (or Transient) tax. This table replaces Table 8.8-9 provided in the AFC.

68. Please update the FY 2001 column to show actual numbers, if available, and add budgeted FY 2002 amounts and FY 2003 projections, if available.

Response: Table 8.8-9R has the updated, final numbers for FY 2001/02. Projections for FY 2002/03 are not available at this time.

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TABLE 8.8-9R
Fresno County Revenues and Expenditures by Fund (\$ Million)

	FY1998/99	FY1999/2000	FY2000/01	FY2001/02
Expenditures				
General	\$63.2	\$70.8	\$71.8	\$66.0
PublicProtection	\$198.8	\$198.5	\$217.7	\$250.0
PublicWaysandFacilities	\$31.0	\$35.7	\$40.5	\$57.9
HealthandSanitation	\$321.6	\$434.3	\$509.4	\$529.8
PublicAssistance	\$292.2	\$214.1	\$216.9	\$228.1
Education	\$8.8	\$13.9	\$15.8	\$26.4
RecreationalandCultural	\$2.4	\$2.5	\$2.9	\$3.4
AppropriationsforContingencies-General				\$1.0
ProvisionforReservesandDesignations				\$9.0
TotalExpenditures	\$917.9	\$969.8	\$1,075.0	\$1,171.5
Revenues				
Taxes—CurrentProperty	\$53.1	\$57.2	\$55.8	\$55.7
Taxes—SalesandUse	\$18.6	\$26.8	\$30.4	\$28.3
Taxes—Other	\$3.6	\$26.2	\$6.1	\$3.9
Licenses,Permits,Franchises	\$5.4	\$5.9	\$7.9	\$6.1
Fines,Forfeitures,Penalties	\$6.8	\$9.6	\$10.1	\$10.1
RevenuefromUseofMoney/Property	\$14.0	\$14.3	\$9.8	\$8.2
IntergovernmentalRevenues-State	\$294.3	\$345.8	\$408.3	\$427.5
IntergovernmentalRevenues-Federal	\$207.0	\$192.8	\$222.6	\$233.8
IntergovernmentalRevenues-Other	\$2.4	\$3.4	\$2.4	\$3.5
ChargesforServices	\$64.4	\$81.4	\$68.4	\$98.7
MiscellaneousRevenues	\$38.0	\$49.3	\$15.9	\$26.6
OtherFinancingSources	\$138.4	\$149.5	\$157.3	\$162.8
ResidualEquityTransfersIn	\$11.1	\$2.6	\$3.5	\$5.6
IntrafundRevenue	\$54.7	\$51.2	\$57.3	\$62.9
TeeterFunds	\$0.7			
TotalRevenues	\$912.5	\$1,016.0	\$1,055.8	\$1,133.7

Source: Fresno County, 2002.
Numbers may not add up due to independent rounding.
Projected budget for FY2002/03 not available at this time.

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BACKGROUND

Table 8.8-10 presents Expenditures and Revenues for the City of San Joaquin. It breaks tax revenues down to "Property" and "Other." It also projects Expenditures and Revenues for 2001-02. As we understand it, there are no hotels or motels within the City's boundaries.

DATA REQUEST

69. Please provide a breakdown of sales tax revenue for the city.

Response: Please refer to Table 8.8-10R for a breakdown of the sales tax revenue for the City of San Joaquin. This table replaces Table 8.8-10 in the AFC.

70. Please update the 2001-02 column to show budgeted amounts and add a "Projected 2002-03" column, if available.

Response: Table 8.8-10R has been updated with final numbers for FY 2001/02. Projections for FY 2002/03 are not available at this time.

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TABLE 8.8-10R

City of San Joaquin General Fund Revenues and Expenditures

	FY1998/99	FY1999/2000	FY2000/01	FY2001/02
Expenditures				
Fees&Charges(40100–40500)	\$24,900	\$19,190	\$12,550	\$27,700
ContractServices(40600)	\$140,000	\$130,000	\$275,000	\$111,000
Contributions,Dues&Subscriptions(40700–40900)	\$2,700	\$2,864	\$2,605	\$2,500
EmployeeBenefits	\$46,550	\$56,422	\$21,500	\$30,000
EngineeringFees	\$11,000	\$20,000	\$5,000	\$5,000
Food	\$0	\$0	\$0	\$2,400
Gas,Oil&Lube	\$3,700	\$4,000	\$2,580	\$2,100
Grants,Insurance,&Interest	\$18,307	\$10,000	\$16,920	\$30,900
Janitorial	\$2,200	\$2,108	\$2,500	\$2,000
LeasePayments	\$35,000	\$35,000	\$33,530	\$33,500
LegalFees	\$42,800	\$28,000	\$18,650	\$18,000
Misc.,OfficeSupplies,ProfessionalFees	\$58,000	\$42,888	\$21,025	\$22,900
Principal	\$0	\$0	\$0	\$8,500
Rents,Repair&Maintenance	\$10,900	\$10,560	\$5,800	\$11,000
Salaries	\$198,700	\$247,100	\$170,600	\$160,000
Supplies,Telephone	\$15,500	\$14,593	\$10,540	\$12,500
TransferOut	\$0	\$0	\$63,000	\$0
Travel	\$6,900	\$9,502	\$1,250	\$1,200
Utilities	\$15,000	\$12,261	\$9,680	\$15,000
Improvements	0	\$10,000	\$1,000	\$0
Machinery/Equipment&Rental	\$15,870	\$10,947	\$1,250	\$8,000
TotalExpenditures	\$648,027	\$665,435	674,980	\$504,200
Revenues				
PropertyTaxes	\$47,950	\$39,560	\$33,995	\$42,000
SalesTax	\$160,000	\$160,000	\$170,000	\$160,000
OtherTaxes	\$15,100	\$15,033	\$16,750	\$16,815
Licenses,Permits,Franchises	\$113,750	\$87,636	\$47,320	\$38,450
FinesandForfeitures	\$16,000	\$9,705	\$9,500	\$10,500
RevenuefromUseofMoney/Property	\$23,000	\$14,906	\$10,800	\$17,800
IntergovernmentalRevenues	\$131,131	\$124,717	\$147,950	\$240,000
CurrentServiceCharges	\$289,000	\$155,548	\$268,020	\$4,000
OtherRevenue	\$170,000	\$59,959	\$8,000	\$69,600
OtherFinancingSources	\$0	\$0	\$0	\$0
TotalRevenues	\$965,931	\$667,062	\$712,335	\$599,165

Source: City of San Joaquin, 2002.

Numbers may not add up due to independent rounding.

Projected budget for FY2002/03 not available at this time.

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BACKGROUND

Section 8.8.3.5, including Table 8.8.11, present enrollment information for the Golden Plains Unified School District only.

DATA REQUEST

71. Please provide present enrollment information for the City of Fresno and City of San Joaquin Schools and discuss current and projected school capacity and their ability to accommodate temporary enrollment during the construction period

Response: Enrollment information for the cities of Fresno and San Joaquin is provided below in Table SO-71. The Fresno City school districts have a total student population of more than 120,000. Even if the project were to result in an additional 1,000 students enrolling in the city schools, this would constitute a very small percentage (less than one percent) of the overall enrollment and would thus have less than significant impact on the schools. It should be noted that the Golden Plains Unified School District has been experiencing declining enrollment of 132 students over the past 3 years.

TABLE SO-71
Enrollment Data for the City of Fresno and the City of San Joaquin Schools

School Districts	1999/2000	2000/01	2001/02	2002/03 ^a Projections	Annual Average % Change (99/00 to 02/03)
City of Fresno					
Central Unified	9,885	10,290	10,546	10,800	3.0%
Clovis Unified	31,933	32,717	33,418	33,882	2.0%
Fresno Unified	78,766	79,007	79,635	NA	0.6% (for 2 yrs)
Monroe Elementary	213	211	220	220	1.1%
Washington Union High	1,328	1,224	1,136	1,136	-5.1%
West Fresno Elementary	1,024	1,475	1,346	NA	14.6% (for 2 yrs)
City of San Joaquin					
Golden Plains Unified	2,022	2,008	1,890	NA	-3.3% (for 2 yrs)

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TABLE SO-71

Enrollment Data for the City of Fresno and the City of San Joaquin Schools

SchoolDistricts	1999/2000	2000/01	2001/02	2002/03 ^a Projections	AnnualAverage %Change (99/00to02/03)
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Source: Fresno County Office of Education, 2002; Education Data Partnership, 2002 (data.k12.ca.us/dev/County.asp); individual school districts, 2002.

<http://www.ed->

^aProjections are from individual school districts and are all tentative.

NA=Not available

BACKGROUND

The first paragraph in Section 8.8.4.3.1 "Construction Workforce" states: "Construction personnel requirements will peak at approximately 605 workers in month 17. However, the peak construction workforce for the plant is estimated at 385 workers in month 15."

DATA REQUEST

72. Table 8.8-12 shows a workforce of 382 in month 17. If water pipeline workforce is added, the total is 495. Please explain these discrepancies and confirm the correct information regarding construction workforce.

Response: A printing error resulted in the first page of Table 8.8-12 being printed twice. Attachment SOC-72 presents Table 8.8-12 from the AFC in its entirety.

BACKGROUND

The second paragraph in Section 8.8.4.3.1 states that based on survey of the Building Trades Council and CEDD, "...workforce in Fresno County will be adequate to fulfill the CVEC labor requirements for construction." However, Section 8.8.4.3.2 states: "It is anticipated that most of the construction workforce will be drawn from Fresno County as well as Madera, Tulare, and Kings Counties, if necessary."

DATA REQUEST

73. Please explain the availability of labor, particularly skilled labor in Fresno County and the conditions under which labor from neighboring counties will be recruited.

Response: EDD's 2000 estimate for construction industry labor force in the Fresno MSA is 16,500. EDD estimates the percentage change for Construction and Mining (these two sectors are lumped together for projection purposes) from 1997 to 2004 at 3.9 percent, or 500 jobs in absolute numbers. According to Fred Hardy (Fresno, Madera, Tulare, Kings Building Trades Council) there are no

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construction workers in the City of San Joaquin. However, Calpine has offered to work with the local unions to help residents of San Joaquin become qualified as construction workers.

Calpine will contract the construction of the plant to a qualified general contractor. The general contractor will be responsible for hiring the laborers for the project. It is in the contractor's interest to hire local labor. However, if sufficient local labor force cannot be found, the labor unions are contacted and, through their association with other local labor unions, provide laborers from outside the area.

BACKGROUND

The labor categories in Tables 8.8-12 & 14 do not correspond.

DATA REQUEST

74. Please provide "Available Labor by Skill in Fresno County" if available from local sources, such as the Building and Trades Council.

Response: The 17 trades councils serving Fresno County were contacted by phone and fax to request information on available labor by skill in Fresno County. Follow up phone calls were made to those trade councils that did not respond to the initial phone call and fax request. Information is available on a service area basis only. The service area which would provide skilled labor for the proposed project is comprised of Fresno, Madera, Kings and Tulare Counties. Tradespersons in this service area reside and perform work generally in Fresno, Madera, Kings and Tulare Counties. Tradespersons residing in the Stockton, Modesto and Sacramento service areas may also provide skilled labor to Fresno County. Information provided by the trades councils is presented in Attachment SOC-74.

BACKGROUND

Section 8.8.4.3.3 cites the number of hotel/motel rooms in the City of Fresno, but does not provide information on hotel/motel vacancy rates in Fresno, the number of hotel/motel rooms and vacancy rates in other nearby communities, nor on the availability of houses, apartments or other temporary housing for rent, which some workers may choose in light of the 26 month construction period.

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DATA REQUEST

75. Please provide the annual hotel/motel vacancy rate, as well as the housing vacancy rate in the City of Fresno, the City of San Joaquin and other neighboring communities. In addition, please identify the number and vacancy rate of RV spaces in the City of Fresno, the City of San Joaquin, and neighboring communities.

Response: The City of San Joaquin does not have any hotels/motels. According to Bobby Bowers of Smith Travel Research (pers. conv. 2002), the annual average occupancy rates for the City of Fresno in 2001 was 61.3%. This was up by 1.3% from 2000. Room rates in 2001 averaged \$57.50, up 5% from 2000.

Please see the attached Table SO 75-1 for estimates of housing vacancy rates in the City of Fresno, the City of San Joaquin, and other neighboring communities.

TABLE SO 75-1
Housing Vacancy Rates in City of Fresno and City of San Joaquin and the Surrounding Communities

Area	January 1, 2000	January 1, 2001
Clovis	3.33%	3.58%
Fresno	5.87%	6.0%
Kerman	3.41%	2.98%
San Joaquin	2.48%	4.51%
Unincorporated	9.29%	10.97%
Fresno County	6.10%	6.59%

Source: DOF, 2002.
All areas are within County of Fresno

There are no RV parks in the City of Fresno nor the City of San Joaquin. Table SO 75-2 shows the nearest RV parks for both cities. The table also indicates the distances of the RV parks and the number of spaces as well as the vacancy rates. The vacancy rates are not fixed and vary by season.

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TABLE SO 75-2
RV Parks Near City of Fresno and City of San Joaquin

RV Parks	Distance(miles)	NumberofSpaces	VacancyRate
CityofFresno			
KingsCanyonRVPark	16.0	NA	NA
WoodenShoeRVPark	33.7	NA	NA
HighSierraRV&MobilePark	42.3	102	5%
WestOliveMobileHomePark	5.4	68	4%
ModernTrailerCourt	5.3	NA	NA
SunandFunRVPark	47.8	60	18%
CityofSanJoaquin			
SommervilleRVPark	30.1	82	6%to61%
WestOliveMobileHomePark	34.6	68	4%
ModernTrailerCourt	40.0	NA	NA
KingsCanyonRVPark	39.6	NA	NA
WoodenShoeRVPark	45.4	NA	NA
Traveler'sRVPark	47.7	46	16%

Source: Individual RV Parks, 2002

NA=Not available at this time, although several attempts to contact these RV parks have been made. Information will be forwarded to the CEC as it becomes available.

References

Bowers, Bobby. 2002. Smith Travels Research (Statistics). Personal Communication. February 8.

California Department of Finance (DOF). 2002. City/County Population and Housing Estimates, 1991-2000 with 1990 Census Counts. Internet sites:

<http://www.dof.ca.gov/HTML/DEMOGRAP/E-5text.htm>

California Department of Finance (DOF). 2002. City/County Population and Housing Estimates, 2000 and 2001. Internet sites:

<http://www.dof.ca.gov/HTML/DEMOGRAP/E-5text2.htm>

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AttachmentSOC-72

[ThefollowingpagesareTable8.8-12,fromtheAFC]

TABLE 8.8-12
Construction Personnel by Month

Discipline	MonthsAfterNotice-to-Proceed																										Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Plant																											
InsulationWorkers												6	10	18	20	20	24	24	24	32	28	18	12				236
Boilermakers								10	20	22	34	36	42	52	58	58	58	57	48	40	15	6					556
Bricklayers/Masons			2	6	6	4	4	4	2	2	2	2	2	2	2	2	2	2	2	1	1						50
Carpenters		6	10	12	10	12	14	16	14	8	8	8	8	8	8	6	5	4	4	4	4	2	2	1			174
Electricians		4	5	6	8	14	20	26	32	35	49	60	64	66	66	66	66	64	62	58	40	24	16	7			858
Ironworkers		4	5	10	10	18	18	22	25	25	28	30	28	30	30	28	24	22	20	18	16	8					419
Laborers	3	4	11	15	12	10	15	15	13	18	22	22	22	22	22	22	30	28	26	22	15	15	7	4	4		399
Millwrights											13	19	26	40	40	40	38	36	32	28	8	8	1				329
OperatingEngineers	3	6	6	6	6	6	10	12	12	12	12	12	12	12	12	12	12	10	8	8	4	4	1	1			199
Painters														4	4	4	8	8	8	8	4	4	2	2			56
Pipefitters			3	6	8	8	17	50	63	68	86	86	78	78	76	75	74	74	63	31	25	10	4	2			985
SheetmetalWorkers										3	6	8	8	9	8	8	8										58
Surveyors	4	4	2	2	2	2	2																				18
Teamsters	2	4	6	10	6	6	3	5	5	5	5	5	4	4	4	3	3	3	3	2	2	1	1	1			93
TotalManualStaff	12	32	50	73	68	80	103	160	186	198	265	294	304	345	350	344	352	332	300	252	162	100	46	18	4		4,430
TotalContractorStaff	3	3	6	14	14	20	20	30	30	35	35	35	35	35	35	35	30	30	30	20	20	15	15	15	7	5	572
TotalPlantStaff	15	35	56	87	82	100	123	190	216	233	300	329	339	380	385	379	382	362	330	272	182	115	61	33	11	5	5,002
WaterPipeline																											
Surveyors												2	3	3	2	2	2	2	2	2	2	2	2				26
Foremen/Supervisors												2	2	6	6	6	6	6	6	6	6	6	6				64
EquipmentOperators														22	40	40	40	40	40	40	40	40	22				364
Laborers														28	48	48	48	48	48	48	48	48	28				440
Teamsters														8	8	8	8	8	8	8	8	8	4				76
Electrical																	2	3	3	2							10
Mechanical,equipment																1	2	2	1								6
Mechanical,piping																1	2	2	1								6
Well Drillers															3	3	3										9
TotalWaterPipelineStaff											4	5	67	107	109	113	111	109	106	104	104	62					1,001

TABLE 8.8-12
Construction Personnel by Month

Discipline	MonthsAfterNotice-to-Proceed																										Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
GasPipeline																											
Surveyors												2	3	3	2	2	2	2	2	2	2	2	2				26
Foremen/Supervisors												2	2	6	6	6	6	6	6	6	6	6	6				64
EquipmentOperators														22	40	40	40	40	40	40	40	40	22				364
Laborers														28	48	48	48	48	48	48	48	48	28				440
Teamsters														8	8	8	8	8	8	8	8	8	4				76
Electrical																	2	3	3	2							10
Mechanical,equipment																1	2	2	1								6
Mechanical,piping																1	2	2	1								6
TotalGasPipelineStaff												4	5	67	104	106	110	111	109	106	104	104	62				992
TransmissionLines																											
Civil										6	4																10
Structural										8	8																16
Electrical													6														6
Misc(supportlabor)									1	2	2	2	1														8
TotalManualStaff								1	18	36	39	58	46	36	2												236
TotalContractorStaff								2	2	6	8	8	6	6	4												42
TotalT-lineStaff								3	20	43	63	80	60	43	6												318
TOTALWORKFORCE	15	35	56	87	82	100	126	210	259	296	380	397	392	520	596	594	605	584	548	484	390	323	185	33	11	5	7,313

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AttachmentSOC-74

InformationProvidedbytheTradesCouncil

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TechnicalArea:SoilsandWaterResources

CECAuthor: CharlieMoore,John KesslerandJoe Crea

CPPAuthorEJ KofordandLucindaDustin

BACKGROUND

ConstructionandoperationoftheCentralValleyEnergyCenter(CVEC)mayinduce waterandwinderosionatthepowerplantsite,proposedasapproximately25acresof developmentofanoverall85-acresite.TheApplicantproposesstoexcavatefromthe 85-acreparcelinordertofillandraisetheelevationof25acresbyabout2feetabove existinggrade.AnErosionControlPlanisneededaddressingconstructionactivitiesat thepowerplantfacility,andanyassociatedlinearorotherfacilities,suchas transmissionlines,pipelines,lay-downareas,andstaging/storageareas.

Stormwaterrunoffmayalsocontributetoerosionandsedimentation.AStormWater PollutionPreventionPlan(SWPPP)willbenecessary,whichaddresseshowdrainage intotheretentionpondwillbemonitoredforcontaminantsbeforeallowingwaterto percolateintothe ground.Currently,stormwaterdrainsintoman-madeditchesand canals.AccordingtoSection8.14.5.4oftheAFC,thesite'sstormwaterwilldrainintoa retentionpond,forpercolationintothe ground.Theplansforthestormwater managementsystemasdescribedintheAFCcouldbeconsideredinconsistent becauseinSection8.14.8oftheAFC,itstatesthatanon-site detentionpondwillbe designedtomaintainthedischargeofstormwaterbelowthepre-constructionflowrates. Useofadetentionpondsuggeststemporarystorageandoff-sitedischarge.

AsrequestedintheNovember14,2001letterfromtheRWQCBtotheCEC,the SWPPPshouldalsoaddressrunofffromtheremaining60acresoflandthatincludes thecoolingtowerandlandscapedareas.Theseareasarealsosusceptibletomaterials associatedwithindustrialactivitythatincludemist,ash,orotherparticulatematterwhich couldbepotentiallydischargedwithstormwaterrunoff(AFCSections8.9.4.2and 8.14.5.4,Figure8.14-4–ProposedDrainageFacilities).

DATA REQUEST

76. PleaseprovideadraftErosionandSedimentControlPlanandSWPPPfor ConstructionActivitythatidentifiesallmeasures thatwillbeimplementedat variouslocationsoftheprojectduringconstructionoftheproposedCVEC Project.The draftErosionControlPlanshallidentifyallpermanentand temporarymeasuresinwrittenformanddepictconceptuallocationsforspecific BestManagementPractices(BMP's)onconstructiondrawing(s)ofappropriate scale.Thepurposeoftheplanistominimizetheareadisturbed,toprotect disturbedandsensitiveareas,toretainsedimenton-siteandtomimizeoff-site effectsofstormwaterrunoff.Theelementsofthepanshallincludespecificbest

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management measures to be employed to control stormwater runoff during construction at identified locations. In addition, any measures necessary to address Nationwide Permits, as required, should be identified. The plans should also identify maintenance and monitoring efforts for all erosion control measures.

Response: The draft Erosion Control Plan will be provided to the CEC in a subsequent filing on March 11, 2002, per our discussions with Staff.

77. Please provide a Site Grading Plan and representative profiles and cross sections of areas that will be cut and filled, in relation to the proposed conceptual location of BMP's for erosion control during construction.

Response: Drawings showing the site grading plan, with representative profiles and cross sections of cut and fill are provided as Attachment S&WR-77a, 77b and 77c.

78. Please clarify if the proposed stormwater system for operations would consist of a retention pond with no off-site discharge, or a detention pond with off-site discharge. If off-site discharge is proposed, please provide the calculated project discharges with the effect of the detention pond, demonstrating that project discharges will be less than undeveloped discharges, for recurrence intervals of 5, 10, 25 and 100-year events.

Response: The proposed storm water system for operations would consist of a retention pond with no off-site discharge. Off-site discharge of storm water is not planned.

79. Please provide an updated Site Drainage Plan for project operations, distinguishing existing from proposed ditches and facilities, and addressing the stormwater runoff collection, conveyance and retention for the remaining 60-acres of land as applicable per the RWQCB's comments. In addition, please clearly distinguish stormwater collection facilities and BMP's applicable to process areas from non-process areas. If it is difficult to distinguish the separation of process from non-process areas in the revised Drainage Plan, then please supplement with a schematic diagram.

Response: Drawings showing the site drainage plan, with ditches, stormwater runoff collection, conveyance and retention are provided in Attachment S&WR-77a, 77b, and 77c.. BMPs related to process and non-process areas are shown on the attached drawing.

80. If the proposed stormwater system for operations would consist of a retention pond with no off-site discharges, please provide the calculations or a summary of the design criteria and analysis determining the adequacy in capacity of the proposed 45.4-acre-foot stormwater retention pond. Please specify the storm event the pond is sized to retain (e.g. 25-year recurrence, 24-hour event), and please describe how greater events will be managed without discharge from the

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site, such as by providing a Pond Balance for the range of events including a 100-year recurrence event.

Response: The calculations for the design of permanent retention basins are as follows.

VOLUME CALCULATIONS

To determine the required storage of basin to hold runoff from 100-year, 10-day event (as per San Joaquin's 'Storm Drainage Master Plan', Yamabe & Horn Engineering, Inc., July 1995), the following equation was used:

$$V = R * C * A$$

where,

V = Volume, ac-ft

C = Coefficient of runoff (composite "C" of entire drainage zone), unitless

A = Area, acres

R = Total amount of rainfall to be expected from 100-year, 10 day storm, feet

The area covered by pavement and roofing is approximately 25.5 acres. The runoff coefficient was determined by predicting post-construction runoff conditions and per a conversation with Mr. Gary Horn, the City Engineer. The remainder of the property (57.5 acres) will be revegetated. The 100-year, 10 day storm is 0.55 feet (as per San Joaquin's 'Storm Drainage Master Plan', Yamabe & Horn Engineering, Inc., July 1995). Since the property is flat and the project site will be slightly elevated, no significant run-on should occur. The minimum volume required is:

$$\text{Composite 'C*A'} = (25.5 \text{ acres} * 0.95) + (57.5 \text{ acres} * 0.25) = 38.6 \text{ acres}$$

$$\text{Runoff V} = 38.6 \text{ acres} * 0.55 \text{ feet} = 21.23 \text{ ac-ft}$$

$$\text{Rainfall V} = 0.55 \text{ ft over } 3.8 \text{ acres} = 2.09 \text{ acre feet}$$

Minimum volume required = 23.32 ac-ft

Design stormwater pond for 25 ac-ft

RETENTION POND DIMENSION CALCULATIONS

- Side slopes of the basin shall be 4:1 maximum (as per San Joaquin's 'Storm Drainage Master Plan', Yamabe & Horn Engineering, Inc. July 1995).

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- Maximum allowable depth will not exceed 12 feet (as per San Joaquin's 'Storm Drainage Master Plan', Yamabe & Horn Engineering, Inc. July 1995).

Bottom basin area = 25 ac-ft/10 ft = 2.5 acres

2.5 acres = 108,900 ft².

Use frustum of pyramid formula to calculate the basin volume:

$$V = 1/3 * d * (B_1 + B_2 + \sqrt{B_1 * B_2})$$

where

B₁ = Area of lower base

B₂ = Area of upper base

d = depth of pond

350 ft x 250 ft:

$$B_1 = (350 \text{ ft} * 250 \text{ ft}) = 87,500 \text{ ft}^2$$

$$B_2 = (350 \text{ ft} + 80 \text{ ft}) * (250 \text{ ft} + 80 \text{ ft}) = 141,900 \text{ ft}^2$$

$$V = [1/3 * 10(87,500 \text{ ft}^2 + 141,900 \text{ ft}^2 + \sqrt{(87,500 \text{ ft}^2 * 141,900 \text{ ft}^2)})] / 43560 \text{ ft}^2/\text{acre} = \underline{26.08 \text{ ac-ft}}$$

This meets the minimum volume requirements of 25 ac-ft.

A 250 ft x 350 ft x 10 ft stormwater pond will contain a 100-year, 10-day storm event, equivalent to a volume of 26 ac-ft. This will also provide one foot of freeboard.

81. Please provide a draft SWPPP for Industrial Activity that identifies all measures that will be implemented at various locations of the project during operation of the proposed CVEC Project. The draft SWPPP shall identify all permanent BMP's in written form and depict conceptual allocations for specific BMP's on the site drainage plan. The draft SWPPP for Industrial Activity should also address the RWQCB's comments as applicable.

Response: Per our discussion with Staff, the draft SWPPP will be provided to the CEC in a subsequent filing on March 11, 2002.

BACKGROUND

In reference to AFC Sections 8.9.3 and 8.9.4, the proposed project would occupy 25 acres of the 85-acre site being acquired by the Applicant. A portion of the 60-acre site would be used for construction laydown and staging. Following construction,

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approximately 60 acres would be returned to its previous use. All 85 acres are designated as Prime Farmland.

DATA REQUEST

82. Please confirm that following construction, the approximately 60 acres of undeveloped land would be returned to agricultural use, such as for growing cotton as it is used presently, and that none of the 60 acres would be used for appurtenant facilities. If this is not the case, please quantify the acreage needed by such additional facilities, and list the purpose of such facilities.

Response: Currently the project will occupy approximately 30 acres of the 85 acre site. However, no plans have been made for the disposition of the remaining 55 acres.

BACKGROUND

Page 2-9, Section 2.2.7.4.1 of the AFC describes Water for the Circulating Water System. This section states: "These tanks will provide approximately 17 hours of operational storage for a maximum flow of 2,638 gallons per minute (gpm) in the event that there is a disruption in flow of reclaimed water." The maximum flow of 2,638 gpm is less than the average flow of 3,321 gpm and the peak flow of 6,455 gpm stated in Table 2.2-1 on page 2-8. No backup water supply is proposed other than storage provided by the proposed two, 1.5 million gallon (mg) capacity on-site tanks. The December 7, 2001 letter from the RWQCB to the Fresno-Clovis Wastewater Treatment Facility (WWTF) specifies that supply of reclaimed water to CVEC must be interrupted if water quality parameters consistent with Title 22 are not met. These include exceeding the turbidity limit of 10.0 NTU and not maintaining the minimum chlorine residual of 0.2 mg/l.

DATA REQUEST

83. Please evaluate the operational storage for the average flow of 3,321 gpm and the peak flow of 6,455 gpm.

Response: At the estimated daily average flow of 3,321 gpm, onsite storage can meet operational needs for approximately 14 hours. At the peak flow on the hottest day, onsite storage can meet operational needs for approximately 7 hours.

84. Based on operational history of the WWTF, please address the adequacy in capacity of on-site recycled water storage with respect to potential for either a disruption in flow caused by either an interruption in supply or a deviation from water quality specifications. If the disruption in recycled water supply exceeds the capacity of on-site storage for either average or peak flow demands, at what point does the CVEC commence emergency shutdown of the facility? Discuss

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thetimeneededfortheemergencysutdownandverifythatattheendofthe emergencyshutdown,therewillbeamplestorageremaining(240,000gallons)to meettheemergencyfireflows.

Response: If makeup water to the project is interrupted for any reason and is not expected to become available within the water storage holding time frame, the project will evaluate the existing economic situation at that time to plan how the plant should run until safe shutdown is required. This determines the target plant load, whether to duct burn, to power augmentation generation (PAG), to fog and how many CTG's to operate safely within the constraints of the available makeup water. This will be dependent of the current market power demand, price and ambient conditions which are continuously changing.

The makeup water holding time is extended as makeup water requirements are reduced with decreasing plant load. The operators will continuously track the water inventory with the water demand to ensure that sufficient water storage is available to perform a safe shutdown. A normal safe shutdown of the CTG's could occur within a half hour for example. The project shall have sufficient water storage to ensure an emergency shutdown is not required. (In comparison, if the fuel gas supply is interrupted emergency shutdown must be initiated immediately as there is no onsite fuel gas storage)

The fire/raw water storage tanks shall have effluent lines at two different elevations. The raw water takeoff shall be located above the firewater takeoff such that the service water pumps shall lose suction when the tank(s) contain a total volume of no less than 240,000 gallons. This configuration eliminates the possibility of losing necessary firewater protection even in the event of a loss of makeup water flow regardless of makeup water needs during plant startup, operation, or shutdown.

BACKGROUND

Page2-14,Section2.2.1oftheAFCdiscussesFireProtection.Thissectionstates that the backup fire pump would be a diesel driven pump. We believe that increased reliabilitycouldbeprovidedwithan auxiliary(standby) powersupplyand an automatic transferswitch.

DATA REQUEST

85. Pleaseevaluatethedesignofthebackupfirepumpsystemusingastandby powergeneratorandautomatictransferswitch.Thegeneratorcouldbefueled withnaturalgas,whichwouldbeon-site.

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Response: The standard fire protection system normally consists of two AC motor driven fire pumps (one jockey pump and one series pump) and one diesel driven backup fire pump as additional backup. Several projects incorporate this arrangement and are determined to be the most reliable arrangement. All three pumps are activated with pressure switches to ensure sufficient flow is available for fire protection.

The project incorporates a natural gas fired standby power generator to automatically switch-on providing emergency loads to vital equipment when AC power is interrupted. Sizing this gas generator to provide electricity for the firepumps would make this generator much larger and require extensive electrical upgrades to the emergency electrical circuits. Gas fired engines for firepumps are not proven as reliable as diesel driven engines. The intent is to provide a fire pump engine that is not dependent upon electricity or the main fuel supply (in case both the power and the main fuel supply become unavailable during a fire).

BACKGROUND

InreferencetoAFCFigure2.2-6a-AnnualAverageWaterBalanceDiagramandFigure 2.2-6b-TypicalSummerHighWaterBalanceDiagram,thesourceofpotablewateris shownaswellwaterandnotfromtheCityofSanJoaquinasreflectedinthetext.In bothfigures,theunitsappeartobein gpm,buttheydonotcorrespondtotheaverage (3,321 gpm)andpeak(6,455 gpm)flowratesshowninTable2.2-1.TheApplicants DataAdequacySupplementdatedDecember2001;paragraph12-WR-9indicatesthat theflowdatainTable2.2-1isaccurate.

DATA REQUEST

86. PleasereviseFigures2.2-6aRand2.2-6bRtoreflecttheCityofSanJoaquinas thepotablewatersupplier,andtoreflecttheaverageandpeakflowsshownin Table2.2-1.

Response: The values listed on the drawings are correct; however the drawings are revised per the CEC's request. Each energy or water balance is for a particular set of conditions at a definite ambient state. Each balance (and flow) represents a still picture which physically can exist for only a short period of time. In reality these many variables will continuously be changing.

A) Table 2.2-1 and Table 7.0-1 both list two different makeup water amounts:

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A-1) The 3,321 gpm is an estimated daily average quantity based on a mixture of duct firing and without duct unfiring. There are no energy or water balances for this mixed operating case.

A-2) The 6,455 gpm is the estimated peak makeup flow at an ambient temperature of 118°F.

B) Figures 2.2-6a and 2.2-6b both list two different makeup water amounts:

B-1) Figures 2.2-6a: The estimated makeup flow at an annual average ambient temperature of 61°F without duct firing or steam injection is 2,650 gpm (4,263 AFY).

B-2) Figures 2.2-6b: The estimated makeup flow at an ambient temperature of 100°F with duct firing and steam injection is 6,302 gpm (10,135 AFY).

The values listed in Figures 2.2-6a and 2.2-6b are correct. Revised drawings are included as Attachment S&WR-86.

87. Please modify Figures 2.2-6a and 2.2-6b to indicate that the reclaimed water passes through the storage tanks prior to being used on-site.

Response: It is possible that the piping configuration may allow makeup water to flow directly to both the cooling tower and the storage tank. This will depend on water amounts, pressures and engineering detail design. The revised drawings are included as Attachment S&WR-86 as Figures 2.2-6aR and 2.2-6bR.

BACKGROUND

In reference to the October 12, 2001 Engineers Report for the Production, Distribution and use of Reclaimed Groundwater for the CVEC, Section 2.7 addresses Reclaimed Water System Improvements and discusses the size and number of sodium hypochlorite tanks to be installed downstream of the reclamation wells. However, the report does not discuss the size and number of sodium hypochlorite tanks at the two, 1.5 mg tanks on-site at CVEC.

DATA REQUEST

88. Please discuss the size and number of sodium hypochlorite storage tanks proposed that would be on-site at the CVEC to feed hypochlorite upstream of the two, 1.5 million gallons water storage tanks.

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Response: One 8,000-gallon sodium hypochlorite tank will be located onsite. This storage tank will supply sodium hypochlorite for use in the cooling system and the 1.5-million-gallon tanks.

89. At average and peak water demands, please discuss the number of days of storage of hypochlorite that will be provided by the hypochlorite tanks at the CVEC site.

Response: Sodium hypochlorite use at CVEC will depend on the downstream chlorination facilities and the presence of organics and other reducing agents in the project makeup water.

At continuous annual average ambient conditions (Figure 2.2-6a at 61°F), makeup water flow is approximately 2,650 gpm or 3.8 MGD. Assuming a conservatively high chlorine demand of 10 ppm in the makeup water and the use of a 10% sodium hypochlorite solution, required sodium hypochlorite feed would be approximately 330 gallons per day. Onsite storage (8,000 gallons) at these continuous conditions would last approximately 24 days at this usage rate.

At continuous hot summer afternoon conditions with duct firing and PAG (Figure 2.2-6b 100°F), makeup water flow increases to approximately 6,302 gpm and required sodium hypochlorite feed rate increases to approximately 788 gallons per day. Onsite storage (8,000 gallons) at these continuous conditions would last approximately 10 days at this usage rate.

90. Discuss how the chlorine feed equipment at the two 1.5 mgd tanks will be kept operational. Will the equipment at the CVEC continuously feed at a low rate then ramp up in the event the chlorine feed equipment at the reclamation wells fails; or will the feed equipment be on standby?

Response: Sodium hypochlorite feed to the 1.5-million-gallon storage tanks will consist of 2 pumps, each with 100% capacity. The system will be maintained in accordance with procedures recommended by the pump manufacturer.

The feed system will be capable of either continuous low-level feed or standby operation. When operating in standby, the system will start automatically if low chlorine levels are detected at the well-field site.

BACKGROUND

In reference to AFC Section 7.1.2 and the Reclaimed Water Quality and Engineers Report for the Production, Distribution and Use of Reclaimed Groundwater for the CVEC - Section 2.7, these sections discuss the application of sodium hypochlorite downstream of the reclamation wells, flash mixing and a continuous chlorine residual analyzer. In

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addition, there is to be a primary continuous chlorine residual analyzer at the inlet of the two 1.5 mg on-site storage tanks. The primary analyzer will signal the reclamation analyzer via telemetry to adjust the hypochlorite feed rate. The 20.5 miles of 27-inch pipe will contain 3.22 million gallons (mg) and with an average day water demands, the detention time will be 16.2 hours. There appears to be an adequate detention time in either the transmission pipe or the tank to provide the needed disinfection. In addition, if water that was inadequately treated was to go undetected but still used within the CVEC, it could result in an adverse impact by not meeting Title 22 standards with respect to both water quality and public health.

DATA REQUEST

91. Please evaluate the need for establishing chlorine treatment system redundancy. An example for establishing redundancy would be to have the reclamation well chlorine analyzer signal the primary analyzer upstream of the two 1.5 mg tanks in the event of chlorine feed failure at the reclamation wells, so that the primary analyzer chlorine feed equipment could ramp up to provide the needed dose.

Response: Telemetry from the well-field chlorine analyzer will alert operators of the possible failure of reclamation well-field chlorine feed equipment. The sodium hypochlorite pumps located at the project site will automatically increase feed rate or start (if in standby) as required to maintain makeup water chlorine level within the target range.

BACKGROUND

In reference to the Engineers Report for the Production, Distribution and use of Reclaimed Groundwater for the CVEC, Section 2.9-Plant Reliability Features discusses the possibility of utilizing “waste valves” at the reclamation wells to divert water to the infiltration ponds in the event a turbidity spike exceeds 10 NTU.

DATA REQUEST

92. If it is determined that the “waste valves” will not be installed, discuss the alternative method that will be used to prevent the use of reclaimed water that might exceed the turbidity limit of 10 NTU.

Response: The applicant will install waste valves to ensure that any potential turbidity spikes during well start up do not result in a violation of the Title 22 requirements for turbidity (10 NTU maximum). The waste valves will be controlled by the individual turbidimeters installed at each well.

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BACKGROUND

In reference to AFC Section 2.2.7.4.1-Water for the Circulating Water System, water-conditioning chemicals are proposed to minimize corrosion, control the formation of mineral scale, and prevent biofouling. The chemicals include:

- Sulfuric acid for alkalinity reduction to control scaling tendency of the circulating water.
- Polyacrylate solution as a sequestering agent to inhibit scale formation in the circulating water blowdown flow.
- Sodium hypochlorite (or bromine or sodium bromide as alternatives) to prevent biofouling in the circulating water system.

DATA REQUEST

93. Please describe the capacity (in days of average and peak plant operation) of each chemical container.

Response:

At continuous annual average ambient conditions (Figure 2.2-6a 61°F):

Sulfuric Acid:	28 days of storage
Polyacrylate:	30 days of storage
Sodium Hypochlorite:	91 days of storage

At continuous hot summer conditions, duct fired and PAG (Figure 2.2-6b 100°F):

Sulfuric Acid:	20 days of storage
Polyacrylate:	15 days of storage
Sodium Hypochlorite:	72 days of storage

94. For each chemical container, please describe whether it would be located inside, in a covered area, or outside, and specify the volume of secondary containment proposed as may be appropriate either individually, by container, or for a group of containers within a storage area.

Response: Sulfuric acid, polyacrylate, and sodium hypochlorite containers will be located outside. Concrete spill containment berms or dikes will be constructed surrounding each of these bulk chemical storage tanks. The secondary containment dikes surrounding each tank will be designed to contain the tank volume plus rainfall from a 25-year, 24-hour storm in accordance with applicable requirements per 40 CFR 112.

Hazardous materials, in general, will be stored in above ground storage tanks, provided with secondary containment meeting the requirements of Article 80 of the Uniform Fire Code. The containment areas will consist of reinforced concrete

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structures with curbs or walls of sufficient height to contain 100% of the volume of the single largest tank located within the containment area. Outdoor installations will include additional volume sufficient to contain the rainwater from a 25-year, 24-hour storm. Indoor installations, where protected by sprinkler systems, will include additional volume sufficient to contain 20 minutes of the design sprinkler flow. Only compatible chemicals will be housed in common containment areas. In the event that the chemicals stored are corrosive to concrete, suitable coating systems will be used to protect the concrete. The floors of chemical containment areas will be sloped to a low point sump where the contents can be removed either by a permanent, portable sump pump or by gravity via a drain pipe and normally closed valve. Typically, the contents to be removed from chemical containment areas will consist of rainwater or washdown water. These streams will either be pumped or drained by gravity to the plant process drain system. Drains from areas that contain equipment or tanks containing oil will have their drains first routed to the plant process drain oil/water separator. Plant process drains will eventually be collected in the main plant sump, located downstream of the plant process drain oil/water separator and pumped to the cooling tower basin where the water will be reclaimed for use as cooling tower makeup.

95. Demonstrate how chemical storage areas are to be drained to prevent discharge to either the storm water or the wastewater system.

Response: Sumps will be provided within the diked areas in order to easily remove collected rainwater and spilled chemicals. Collected wastewater will be tested and disposed of off-site if quality precludes disposal in the zero liquid discharge system.

96. In general, water and wastewater system chemicals are to be added in proportion to flow. Are chemical dosage control systems proposed that will sample and maintain chemical concentrations within high and low tolerances (set points)? Will alarms cause systems or plant operation to shut down in the event chemical concentrations are out of allowable ranges?

Response: Chemical dosage monitoring and control will be performed by both continuous real-time and grab-sample monitoring. The use of online versus grab-sample monitoring will be dictated by the inherent variability of the constituent and its associated treatment.

Online analyzers will incorporate the use of alarms and interlocks. Setpoints depend on the system and the constituent. The control loop for processes

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controlled automatically will normally incorporate a low alarm, high alarm, control setpoint and shutoff interlock.

Failure of the sensor associated with a particular process control will cause that process control to shutdown or enter a preprogrammed "safe" mode. For example, failure of the cooling tower pH analyzer will result in the shutdown of the cooling tower acid feed system.

BACKGROUND

In reference to AFC Section 2.2.9.1.2-Zero Liquid Discharge (ZLD) Treatment System, and Figures 2.2-6a and 2.2-6b, the Multimedia Filter, High TDS Reverse Osmosis, Brine Concentrator and the Drum Dryer are critical processes proposed to achieve ZLD. Absent redundancy in the capacity of these wastewater treatment units, a failure in any of these units could result in either plant electrical production being curtailed or an unauthorized discharge of the wastewater or wastestreams. Therefore, staff needs additional information to accurately assess the potential for an accidental spill and resultant adverse environmental impact.

DATA REQUEST

97. Will the Multimedia Filter, High TDS Reverse Osmosis, Brine Concentrator and the Drum Dryer be installed in tandem for redundancy in the event of failure?

Response: The ZLD system Multimedia Filter, High TDS Reverse Osmosis, Brine Concentrator, and Drum Dryers shall incorporate sufficient redundancy to allow operation at 50% of design flow in the event of any single component failure. Redundancy may include units installed in tandem or installed spares for critical pumps and valves.

98. If the equipment will not be installed with redundancy, what will be the procedure in the event of equipment failure?

Response: The zero liquid discharge system shall be capable of sustained operation at no less than 50% of design flow in the event of any single component failure.

99. Emergency storage ponds are not discussed in the AFC. Will emergency storage ponds be needed in the event of ZLD equipment failure?

Response: Emergency storage ponds will not be needed due to redundancy in the ZLD system.

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100. If emergency storage ponds will be needed, please evaluate their size and location.

Response: Emergency storage ponds will not be used.

BACKGROUND

In reference to Figure 2.2-6a and Figure 2.2-6b, both of the reverse osmosis treatment systems produce reject water.

DATA REQUEST

101. Please clarify why the reject from the High TDS Reverse Osmosis system is directed to the Brine Concentrator while the reject from the Makeup Reverse Osmosis system is directed to the Cooling Tower.

Response: Total dissolved solids in the reject from the High TDS reverse osmosis system are much higher than total dissolved solids in the makeup reverse osmosis system. Directing High TDS reverse osmosis reject to the cooling tower would significantly impact cooling water chemistry.

Makeup reverse osmosis reject, containing a much lower level of total dissolved solids, does not adversely impact cooling water chemistry.

BACKGROUND

The last sentence of the first paragraph under 2.2.8-Plant Cooling Systems states that "Approximately 212,163 gpm of circulating cooling water is required to condense the steam at maximum plant load," which appears inconsistent with the Water Balance depicted on Figure 2.2-6b.

DATA REQUEST

102. Please clarify the inconsistency of this statement in comparison to the water balance shown in Figure 2.2-6b.

Response: The water balance depicted in figure 2.2-6b shows cooling system evaporation and blowdown rates. The statement in 2.2.8 refers to the cooling tower circulating water flow which is not shown in the figure. This amount of water will circulate through the surface condenser to condense the steam. A small percentage of this recirculating water flow is lost through blowdown and evaporation (shown in Figures 2.2-6a and 2.2-6b). The water balance accounts

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for all water entering and leaving the project, but does not normally show water flows that do not impact water supply or wastewater discharge.

BACKGROUND

Section 7.1.2 of the AFC discusses the siting of the sodium hypochlorite facility. This section states that in order to meet required setbacks, it is proposed that the southerly levee of Pond 68 be removed and relocated approximately 45 feet to the north.

DATA REQUEST

103. Please describe the nature of Pond 68, as to its type of facility, and as to what regulatory permit requirements might apply to the proposed relocation of the levee.

Response: The Applicant suggests the containment for Pond 68 should be referred to as a "berm", instead of a levee. The berm is not used for flood control purposes, nor would it be within the jurisdiction of the Army Corps of Engineers or regulatory agencies outside of the City of Fresno. Pond 68 is one of many settling ponds at the Fresno Wastewater Treatment Facility and is part of a system of low earthen berms that retain treated effluent for evaporation and infiltration into the groundwater table. The applicant understands that the City of Fresno operates this facility under a use permit and that no outside agency approvals are required for the proposed relocation.

BACKGROUND

In reference to AFC Section 8.14.3, and Data Adequacy Response 6-WR-3, the proposed discharge of sanitary wastewater from the CVEC to City of San Joaquin's secondary wastewater treatment facility (WWTF) is currently prohibited under its current Waste Discharge Requirements as issued by the RWQCB. Although the Applicant has identified alternative means to dispose of wastewaters such as septic systems, etc., it is understood that the preferred point of discharge would be to the WWTF. Based on the November 14, 2001 letter from the RWQCB to the CEC commenting on the proposed CVEC project, the status of WWTF upgrade from a regulatory standpoint is characterized as pending submittal of a Report of Waste Discharge to the RWQCB and compliance with CEQA.

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DATAREQUEST

104. Please provide a schedule of the expected time required to coordinate regulatory approvals, comply with CEQA and achieve the physical upgrade in discharge capacity to the City of San Joaquin's WWTF.

Response: The City of San Joaquin expects to have expanded wastewater disposal capacity in place by Summer of 2002. It notes that no connections would be permitted until that expanded capacity is in place. The CVEC expects to be operational no earlier than 2004. If for some reason the City's capacity were not available by then, the CVEC could, subject to CEC review and approval, use a number of on-site disposal methods for sanitary wastewater including on-site septic system, on-site vault toilets, or portable vault systems, depending on how long the City's wastewater disposal capacity was expected to be limited.

BACKGROUND

Table 8.14-1 (Water Resource LORS) and Table 8.14-7 (Water Resource Permits) lists that both an Army Corps of Engineer's Section 404 Permit and a CA Department of Fish and Game Streambed Alteration Permit may be necessary with respect to pipeline crossings at canals and waterways.

DATAREQUEST

105. Please provide a list of these crossings where permits may be necessary and describe the proposed facilities and potential disturbance that may occur within the ordinary high water mark of the channel or within associated wetlands.

Response: Please see the response to Data Request #36.

106. Please provide written evidence of consultation with these agencies and the prescribed permit processes as applicable.

Response: Written documentation of agency consultations is forthcoming, and will be provided in the supplemental information filed on or before March 11, 2002, per our discussion with staff. For a discussion of permit requirements, please refer to response to Data Request #36.

BACKGROUND

In reference to AFC Table 8.14-1—Water Resource LORS, and Table 8.14-7—Water Resource Permits, it lists that both an Army Corps of Engineer's Section 404 Permit and

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aCADepartmentofFishandGameStreambedAlterationPermitmaybenecessary
withrespecttopipelinecrossingsatcanalsandwaterways.

DATA REQUEST

107. Please provide a list of these crossings where permits may be necessary, and describe the proposed facilities and potential disturbance that may occur within the ordinary high water mark of the channels, or within associated wetlands.

Response: Please see the response to Data Request #36.

108. Please provide evidence of consultation with these agencies and the prescribed permit processes as applicable.

Response: Please see the response to Data Request #106.

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AttachmentsS&WR-77a,77b,77c

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77a:Grading&DrainagePlan,PlanView

77b:Grading&DrainagePlan,Cut&FillQuantities

77c:Grading&DrainagePlan:CrossSections

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AttachmentS&WR-86

RevisedFigures2.2-6a,2.2.6b

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TechnicalArea:TrafficandTransportation

CECAuthor: DavidYoung

CPPAuthorsJeanne AcutanzaandJudyClark

BACKGROUND

TheAFCdiscussestheconstructionofthewaterandgaspipelinelinearfacilitiesin sections8.10.4.2.2and8.10.4.2.3.However,theconstructionschedules,workforce transportation,travelroutesandparkingarrangementsassociatedwiththese linears werenotprovided.

DATA REQUEST

109. Pleaseprovidetheconstructionscheduleassociatedwiththewaterandgas pipelines.

Response: The construction schedule for the water and gas pipelines is provided in AFC Table 8.8-12. A copy of this table is provided as Attachment SO-72.

110. Pleaseprovideamonthlybreakdownoftheconstructionmanpowerschedulefor eachlinearfacility.

Response: See Data Response #109.

111. Pleaseprovideamonthlyschedulindicatingtheamountsoftruckdeliveries associatedwitheachlinear.

Response: The amount of truck deliveries associated with the water, gas and transmission lines varies with the staging areas set up by the contractors. The maximum estimated on any day is estimated to be seven for the water and gas line facilities and five for the transmission line. The table below indicates the anticipated daily volume of truck deliveries made for each type of facility along the construction path.

DailyTrucksbyLinear	MonthsAfterNotice-to-Proceed													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
WaterPipelineTrucks								4	40	80	80	40	4	2
GasPipelineTrucks								4	40	80	80	40	4	2
Transmission-LineTrucks	1	2	3	4	5	4	3	1						

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112. Please discuss how the linear construction would affect traffic volumes and LOS on area roadways.

Response: The traffic impacts from construction of linear facilities on volumes and LOS would be temporary and limited to a few sites where traffic patterns are coincidental with the roadway right of way (ROW). Regarding the volume, the maximum 87 additional trips would be attracted by a linear water pipeline facility from worker travel to and from the sites. Since the sites are spread over the water line path, the additional traffic due to the work would also spread and move to sites along the path. The occupancy of autos or pickup trucks utilized by workers is assumed to be 1.3 persons per vehicle.

For construction of the gas pipeline a maximum of 85 trips would be destined to multiple points along the gas line path. For the construction of the transmission line, 62 trips would be attracted. These volumes are not sufficient to create an impact on LOS. LOS measures are sensitive to changes of hundreds of trips when done either at intersections or along road segments.

BACKGROUND

The construction of the linear facilities would require working within roadway rights-of-way.

DATA REQUEST

113. Please identify the effects the construction of the linear facilities would have on local residents, businesses and on street parking.

Response: Access during pipeline construction will be along existing roads and rights-of-way. Construction of the linear facilities to support the CVEC will add a minimal amount of traffic to state routes and local roadways during the peak construction period. However, because existing roadway capacity is adequate, these linear facility-related traffic increases will not result in measurable adverse impacts.

114. Discuss the measures that would be used to minimize the effects.

Response: Most trip reduction strategies are not feasible for the construction phase of the project, primarily because of the differing schedules of trades persons and the need to transport tools and materials to the job site. However, some staggering of the workforce might be possible. The construction contractor for the linear facilities will prepare a construction traffic control plan and

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construction management plan that addresses timing of truck deliveries, traffic control, and establishing work hours outside of peak traffic periods.

115. Please discuss what measures would be used to ensure safer roadway conditions during the construction of linear facilities such as lane marking, construction notices, roadway signage, detours, flag person, etc.

Response: Methods for mitigating potential traffic impacts caused by construction may include such activities as stationing flag persons at the site of the delivery, and placing advance warning flashes, flag persons, and signage along the roadways associated with the natural gas and water pipelines.

The construction contractor will work with the local agencies' engineer to prepare a schedule and mitigation plan for the roadways along the construction routes.

BACKGROUND

The AFC states that shipments of hazardous materials would be required for the construction and operation of the power plant.

DATA REQUEST

116. Please identify any traffic safety danger points, i.e., sharp curves or sensitive receptor such as schools, residences or hospitals, along these routes.

Response: The only shipment of hazardous materials of interest would be the transportation of anhydrous ammonia. Because of the heavy agricultural uses in the area, shipments of anhydrous ammonia are very common in this area. (On a recent field trip, 3 trucks were seen within a 2-hour time frame). Anhydrous ammonia would be shipped to the CVEC project from I-5, east on Manning Avenue, south on Colusa Avenue, east on Cherry Lane. Manning Avenue is a 2-lane road with 12-foot lanes and a 3-foot shoulder. It has a white reflective fog line along the road edge from I-5 into the City of San Joaquin. Colusa Avenue is a 2-lane road but narrows to 1-lane at the edge of the developed portion of the street. The remainder of Colusa Avenue would have to be widened to 2-lanes until the intersection of Cherry Lane. The location of schools is provided in AFC Figure 8.6-1. There are no hospitals along the route. Two residential trailers are located within a fenced storage yard on the north side of Manning Avenue approximately 1.7 miles east of I-5. A few more scattered residences are located off Manning Avenue beginning at Contra Costa Avenue (about 18 miles east of

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I-5 and continuing for about 3 miles) until just outside the City of San Joaquin. In the vicinity of the City, there are several residential areas.

BACKGROUND

TheAFCdiscusses hazardous material deliveries during the construction and operational phases of the project but does not include any discussion on hazardous waste disposal.

DATA REQUEST

117. Please discuss the following items related to hazardous material disposal during the operational phase of the project:

a) Location of disposal facilities

Response: Two possible disposal facilities located in the area where disposal will likely be hauled are at 3415 West Belmont Avenue in Fresno and at 35521 Old Skyline Road in Kettleman City.

b) Proposed truck routes

Response: The proposed truck routes for disposal of solid hazardous waste generated by the facility would be as follows for the two disposal sites to which the waste would be hauled during operation.

All Valley Disposal, 3415 West Belmont Avenue:

From CVEC site proceed to S Colusa Avenue;
Right (East) onto W Manning Avenue;
Left (NE) onto McMullen Grade;
Left (North) on S Dickenson Avenue;
Right (East) onto SR 180;
Left (North) onto N Cornelia Avenue;
Right (East) onto W Belmont Avenue to facility.

Hazardous Waste Disposal, 35521 Old Skyline Road:

From CVEC site proceed to Cherry Lane, to Colusa Avenue to Springfield Avenue;
Proceed SE on Colorado Road;
Right (south) on SR -145 via S Lassen Avenue;
Right (West) onto SR -145 via W Mt Whitney Avenue;
left (South) on SR -145 via Fresno-Coalinga Rd

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Enter I-5 at the I-5/SR33 ramp;
At I-5 SR 269 Exit bear right (South) onto SR 269 via S Lassen Ave;
Bear right again onto SR 269;
Bear left onto SR 269 via N Skyline Boulevard;
Bear left (East) onto Old Skyline Road to facility.
c) Trucktripfrequency

Response: Table T&T117-1 has been prepared to indicate the number and frequency of trucks having hazardous materials to dispose at those facilities.

TABLE T&T117-1
Hazardous Waste Disposal

TypeofHazardousWaste	PossibleRecyclinglor DisposalFacilities	Numberof Shipments
SCRCatalyst	MitsubishiHeavyIndustries Nagasaki,Japan Cormetech Durham,NorthCarolina KettlemanHillsDisposalFacility 35521OldSkylineRd KettlemanCity,CA	0.2to0.3peryear (onceevery3to5 years)
COCatalyst	EngelhardCorporation Iselin,NewJersey KettlemanHillsDisposalFacility 35521OldSkylineRd KettlemanCity,CA	0.2to0.3peryear (onceevery3to5 years)
Lubricatingoil	AllValleyDisposal 3415W.Belmont Fresno,CA	4peryear
Lubricatingoilfilters	AllValleyDisposal 3415W.Belmont Fresno,CA	4peryear
Laboratoryanalysiswaste	AllValleyDisposal 3415W.Belmont Fresno,CA	4peryear
Oilyrags	AllValleyDisposal 3415W.Belmont Fresno,CA	4peryear
Oilabsorbents	AllValleyDisposal 3415W.Belmont Fresno,CA	4peryear
Coolingtowersludge	KettlemanHillsDisposalFacility 35521OldSkylineRd KettlemanCity,CA	1peryear (200 lb)
WasteCleaningchemicalswithmetals	KettlemanHillsDisposalFacility	2to4peryear

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35521OldSkylineRd
KettlemanCity,CA

BACKGROUND

TheAFCstatesthattheproject'sconstructiontrafficwouldcrosstheUnionPacific Railroad(UPRR)attwolocations.

DATA REQUEST

118. Pleaseindicate themonthlyamountofrailtrafficassociatedwiththeUnion Pacificline.

Response: Construction traffic will only be allowed to cross the UPRR tracks at Colorado Avenue. It will not be allowed to enter the site from the south along Springfield Avenue. We are still trying to obtain information about the average number of trains that use the track. This information should be available by March 11, 2002.

BACKGROUND

Table8.10-3displaystheexistingtrafficcharacteristicsofallroadwaysaffectedbythe CVECproject.However,thetabledoesnotincludeanydatafortheroadways potentiallyaffectedbytheconstructionoflinearfacilities.

DATA REQUEST

119. Pleaseprovideexistingandprojectedcharacteristicsforallroadwayspotentially affectedbytheconstructionoftheCVEClinearfacilities.

Response: The route most impacted by the construction of the linear gas and water facilities is Manning which is paralleled for roughly 41 miles of the total 50 miles and is included in the Table 8.10-3. The other roads the water line parallels are Jameson, Lincoln and Chateau Fresno Avenues which are minor roads not covered by the count database.

BACKGROUND

Table8.10-3oftheAFCdisplaysexistingtrafficcharacteristicsincludingHourlyDesign Capacity(HDC).However,datawasnotavailable(NA)forsomeroadwaysegments.

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DATAREQUEST

120. Please describe how Level of Service were determined without known HDC.

Response: The LOS calculations were made using HCM 2000 software with the default capacity values for two lane and four lane highways. According to the Highway Capacity Manual (HCM) Table 12-15 the performance of SR 33 at LOS is in the expected range of up to 260 trips per hour. When this was run two estimates were provided and the more conservative was used. HCM Table 13.6 shows that the I-5 LOS estimates of C for Existing and LOS D in the future when the volumes are 4700 and 4850 for existing and are 5300 and 5500 in the future are conservative since the examples are 4620 for LOS B and 6680 for LOS C.

BACKGROUND

Section 8.10.5 of the AFC states that there are no other known, proposed projects whose construction workforce and/or material deliveries would concurrently travel the same state routes and local roadways.

DATAREQUEST

121. Please provide the source of this assumption, i.e., the City of San Joaquin's Community Development or Planning Department; or Fresno County Planning or Public Works Department, or other applicable source.

Response: The assumption is based on a conversation, referenced as Jimenez, B. 2001 in Section 8.10.8 References.

BACKGROUND

The AFC discusses air traffic in section 8.10.3.8 and indicates that there is the possibility of private landing strips in the general area of the project site.

DATAREQUEST

122. Please supply the location (i.e., addresses, or location near mapped roads) for any air related facilities or landing strips in the area that could potentially be affected by the CVEC.

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Response: All public airports in the vicinity of the proposed project are greater than 10 miles from the CVEC site. One active air strip (apparently used by a crop dusting operation) is located on the north side of Manning Avenue, just east of the Fresno Slough. The landing strip is approximately 3.47 nautical miles from the nearest western limit of the project site.

Figure T&T-122, attached, provides a depiction of landing strips that may be in the project area based on available topographic maps and street maps. It was attempted to verify the information via the internet from a public entity responsible for maintaining information on private air strips, but due to current security reasons, the information could not be verified.

BACKGROUND

The AFC states that all of the highways potentially affected by the CVEC are operating at or above a LOS B. However, Table 8.10-3 shows some existing roadway segments operating at a LOS C.

DATA REQUEST

123. Please clarify if Table 8.10-3 represents the correct existing traffic characteristics for the listed roadways and correct the table accordingly.

Response: The reference in the text is in error. All operate at LOS C or better.

BACKGROUND

Table 8.10-3 displays estimated Average Daily Volumes for streets and highways for the CVEC. An asterisk is used but does not provide the source for these estimates.

DATA REQUEST

124. Please provide the source of the estimates for the set two roadways.

Response: The sources are: for Colorado Avenue, the Fresno County Department of Public Works, 1/7/2000 response with 1997 data; for Manning Ave, the Council of Fresno County Governments, which responded with data for 1996. In both cases growth factors were applied to estimate the then existing Average Daily Volumes.

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BACKGROUND

The Combined Daily Traffic and Combined p.m. Peak Traffic volumes in Table 8.10-7 do not correctly reflect the additional 938 daily trips generated by the project construction workforce.

DATA REQUEST

125. Please describe why the Combined Daily Traffic counts in Table 8.10-7 do not correlate with the Average Daily Volumes for the same roadways in Table 8.10-3.

Response: The combined numbers appearing in Table 8.10-7 are the sum of the additional construction traffic and the 2004 estimated future conditions without the project. This is a more conservative way to present the impacts than to use the existing volumes.

126. Please make the appropriate changes to Tables 8.10-3 and 8.10-7 to accurately reflect the addition of the daily construction trips.

Response: The data does not need to be changed. For example, from Table 8.10-3 the 2004 volume of 2585 is used in the first row rather than the existing volume of 2295. When added to the construction volume 938, the total for analysis is 3523.

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FigureT&T-122:PrivateLandingStripsInVicinityofCVECSite

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TechnicalArea:TransmissionSystemEngineering

CECAuthor: Mark Hesters

CPPAuthorAli Amirali

BACKGROUND

AccordingtotheSystemImpactStudyfortheCentralValleyEnergyCenter(CVEC)the operationoftheproposedprojectcouldcausetransmissionlineoverloadsundernormal operatingconditions.TheCaliforniaIndependentSystemOperator(Cal-ISO)willnot allowtheoverloadstooccurandwouldinsteadusecongestionmanagementprotocols tomitigateoverloads.StaffisconcernedthattheCal-ISOwilluse decrementalbidsto mitigatelinecongestioncausedbytheCVECandthiswillcreateasituationwherethe CVECcreatescongestionandthengetspaidtomitigateitatratepayercost.

DATAREQUEST

127. Pleasedescribehowcongestionmanagementwouldbeusedtomitigateline overloads.Wouldtheprojectessentiallycreatecongestionandthengetpaidto preventcongestion?DescribehowcongestioncausedbytheCVECwouldbe handledbytheCal-ISOundercurrentrulesandwhowouldpayforthemitigation

Congestion on a transmission system is generally associated with the integrated operation of a transmission system (generation and imports) and not due to the operation of any one unit. The operating conditions under which transmission congestion occurs are limited. Under the current market paradigm, the California Independent System Operator (ISO) utilizes Incremental and Decremental bids submitted by market generators to mitigate congestion over the transmission system. The bids are accepted in merit order of price thereby causing the ISO to move the cheapest resource in the desired direction first.

Just like most generating projects, under extremely limited operating conditions, operations of CVEC has the potential to reduce or contribute to congestion in the area, depending on many factors that will be analyzed when the project begins commercial operation, taking into consideration the then-existing conditions and configurations of the transmission system. CVEC LLC, is working with the ISO to identify and minimize the potential existence of these operating conditions, and the Commission's standard Conditions of Certification for this subject recognize that the details of this process must be developed and refined post-certification as the project moves toward commercial operation . If, after the commercial operation of CVEC transmission system congestion is observed, the ISO will treat CVEC generation in a manner similar to the existing generation in

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the Fresno Area (except under hydro run off conditions where hydro generation is not decremented) in mitigating the congestion in the local area transmission system.

Finally, it is important to note that these congestion issues have no effect on the safe and reliable interconnection of the CVEC project and there are no environmental affects associated with congestion related issues which, by design, will be addressed when the project begins commercial operation.

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TechnicalArea:VisualResources

CECAuthors: KenPeterson

Plume: WilliamWaltersandLisa Blewitt

CPPAuthor: Tom Priestley

BACKGROUND

InadditiontotheKeyObservationPoints(KOPs)identifiedintheAFC,theprojectsite canbeseenatleastpartiallyfromseveralsignificantobservationpoints,including:

- Viewfromtheschoolballparkstands
- ViewfromtheCommunityCenterparkbandstand
- ViewfromtheresidencesneartheNorthwestcornerof ColusaAve.andKaren Ave.
- ViewfromtheresidencesontheSoutheastsideof12thStreetbetweenColorado andArizonaAvenues
- ViewfromtheresidencesonSutterAvenuesouthofManningAvenue

Itappearsthatthepublicandresidents'viewsfromtheabovelocationscouldbe significantlyaffectedbytheproposedCentralValleyEnergyCenter,andthatfurther analysisandmitigationmayberequiredtoaddressthesepotentialimpacts.

DATAREQUEST

128. Pleaseevaluatetheproposedproject'spotentialimpacttovisualresourcesatthe aboveobservationpoints.Theexactnumberofresidencespotentiallyaffected shouldbeascertained.Potentialevaluationmethodologycouldincludeuseof wireframestosimulatetheproject'sprofileonthehorizon,takingpicturesof balloonstetheredfromtheprojectsiteattheproposedheightoftheproject's stacks,oruseof photosimulations.Iftheevaluationshowspotentialforthe projecttocauseasignificantimpactattheaboveviewpoints,pleasepropose mitigationforeliminatingtheimpactorreducingittoalessthansignificantlevel. Potentialmitigationmeasurescouldinclude:
- a. Arevisedon-sitelandscapingplanthatwouldadequatelyscreentheproject fromtheseviews,includingamaptoscale;and/or,
 - b. Addingpermanenttreesandshrubsonpark,school,andprivatepropertythat wouldpartiallymitigatethevisualimpactsoftheprojectfromtheselocations. Thedesirabilityofnewtreesorshrubsshouldbediscussedwiththe residents,andschoolandCityofficials.Forexample,someresidentsmay prefertheuseof8'shrubsratherthantrees,orspecifictreetypesthatare moreopeninthelowerportionsoftheirtrunks.

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Response: A revised on-site landscaping plan that complements the facility appropriate to the regional context is being developed in consultation with the City of San Joaquin. Per our discussions with staff, response to this request will be provided to the CEC on March 11, 2002.

BACKGROUND

Four key observation points (KOPs) were established in order to evaluate both the visual setting and the potential for project-induced visual impacts. Photographs were obtained at each KOP and presented along with visual simulations of the proposed project. Based on a field reconnaissance, all of the images (existing view photographs as well as simulations) are presented at less than life-size scale. The presentation of images at such a reduced scale does not accurately represent the views that would be experienced at the various KOPs because the images substantially understate the prominence of visible landscape features as well as potential visual impacts.

DATA REQUEST

129. Please re-scale all existing view and simulation images to achieve life-size scale. If re-scaling results in substantial degradation of the image, please provide new setting and simulation images at life-size scale. After obtaining appropriately scaled images, please provide four copies of high quality 11"x17" color photocopies of the existing views and simulations, and any images or simulations produced in response to Data Request No. 128.

Response: Five copies of each of the existing view and simulation images have been printed at high resolution at 11 x 17 size, and are being submitted under separate cover as Attachment VIS-129.

BACKGROUND

The site plan referred to in the Data Adequacy Responses (12-VR-5) has not been submitted.

DATA REQUEST

130. Please submit the site plan referred to in the Data Adequacy Responses (12-VR-5).

Response: Data Adequacy Response (12-VR-5) refers to a Site Plan Review that was conducted by the City of San Joaquin. Per our discussions with Staff, a copy of the city's review request will be provided to the CEC on March 11, 2002.

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BACKGROUND

The AFC's discussion of mitigation (p. 8.11-25) includes three tentative mitigation measures.

DATA REQUEST

131. Please submit all final mitigation measures that the applicant is proposing.

Response: Final mitigation measures are not currently available because input from the City of San Joaquin on these measures is on-going. The final mitigation measures will be provided to the CEC subsequent to finalization of the site plan with the City.

BACKGROUND

The AFC did not discuss project element paint finish specifications and textures.

DATA REQUEST

132. Please submit detailed color, paint specification, and texture plan for major project elements, including transmission lines and towers.

Response: This question is premature. The details of project color and paint specifications are generally worked out in post-certification.

BACKGROUND

For many years after start of project operation the landscaping would not be sufficiently developed to provide significant blockage of the project except for the palm trees, which would be 25' tall when planted.

DATA REQUEST

133. Please consider the augmentation of the landscaping plan to include the use of trees other than palm trees that would provide more complete screening. Also please consider the wider use of trees that can maximize screening of the power plant within the first five years of operation in the area to the left and right of the presently-planned palm trees shown in KOP1.

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Response: The purpose of including the palm trees in the landscaping plan was create a landscape composition similar to that which exists along the rural roadways surrounding Kearny Park to the west of Fresno. Consultation with the City of San Joaquin about final landscaping design is on-going and the conceptual landscape plan will be refined to reflect community input.

BACKGROUND

It is Commission staff's understanding that the applicant is considering utilizing an off-site parcel for temporary construction, employee living, and service facilities.

DATA REQUEST

134. Please submit the final plan for temporary construction, employee living and service facilities, a discussion of visual impacts caused by these facilities, and possible mitigation.

Response: The applicant currently has no plans for any off-site temporary facilities of any kind for employees.

BACKGROUND

The application states that temporary cyclone fencing will be designed and installed around the laydown area to reduce the visibility of construction period activities.

DATA REQUEST

135. Please describe the design details planned for the cyclone fencing to be used for reducing the visibility of construction period activities.

Response: The cyclone fencing will be typical of what is normally used for construction projects. The fencing will be 6 feet in height, chain-link, with an additional 2 feet of barbed wire. This fencing will only be used during project construction.

BACKGROUND

The AFC (Section 8.11.4.4.5, p. 8.11-22) indicates that industrial facilities located on the north side of the City of San Joaquin and in neighboring communities are already the source of visible plumes. Also, agricultural burning in the area produces large clouds of

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smoke. In order to assess the project's visible water vapor plume impacts, staff requires more information regarding the existing plume setting.

DATA REQUEST

136. Please provide a list of the visible water vapor plume sources located near the project site. Also, please provide a map showing the location of each visible water vapor plume source provided in the list.

Response: During various field visits to the project area during the AFC preparation process, existing water vapor plumes have not been directly observed. However consultation with the City of San Joaquin on the subject of water vapor plumes that may be present in the existing setting is in progress and an update will be provided to the CEC upon availability of this information.

137. For all currently existing visible water vapor plume sources, please identify how often they operate and specify whether any are both frequent and visually dominant in general. For existing cooling towers, please identify their heat rejection load in megawatts.

Response: Refer to Data Response #136.

BACKGROUND

Staff plan to perform a plume modeling analysis for the cooling tower using both the Seasonal/Annual Cooling Tower Impact (SACTI) Model and the Combustion Stack Visible Plume (CSVP) Model. Staff will require additional project data to complete this analysis. Please note that staff intend to model the cooling tower using hourly estimated exhaust conditions based on the hourly ambient conditions of the meteorological file used to perform the modeling. The cooling tower exhaust will be assumed to be saturated at the exhaust temperature provided through interpolation. Therefore, additional combinations of temperature and relative humidity, if provided by the applicant, will be used to more precisely represent the cooling tower exhaust conditions.

DATA REQUEST

138. Please summarize for the cooling tower the design parameters that affect vapor plume formation, including exhaust temperature, exhaust mass flow rate, and moisture fraction by weight. These values should account for a range of ambient conditions that show a reasonable worst-case operating scenario. For example, ambient conditions from the turbine emissions and operating parameters of AFC Appendix 8.1 are provided in the table below; however a similar, alternative

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range of design parameters may be provided in the response. Update any information provided within the table, if necessary.

Parameter	Cooling Tower Exhausts					
Number of Cells	16 cells (in 1x16 array)					
Cell Height	18 meters					
Cell Diameter	10.7 meters					
Ambient Temperature	32°F		61°F		100°F	
Ambient Relative Humidity (%)						
Duct Burner Status	On	Off	On	Off	On	Off
Power Augmentation Status	On	Off	On	Off	On	Off
Heat Rejection (MW/hr)						
Liquid/Gas Mass Flow Ratio						
Design Inlet Air Flow Rate (kg/s)						
Exhaust Temperature (°F)						
Exhaust Flow Rate (lb./hr)						
Molecular Weight (estimated)	28.8 g/g- mol					
Moisture Content (% by weight) (if cells are plume-abated)						

Response: Please refer to Attachment VIS-138.

139. Please indicate if the cooling tower has any plume mitigation features that would reduce the 100 percent moisture content that will be assumed for conventional cooling tower exhaust.

Response: Please refer to Attachment VIS-138.

BACKGROUND

The visible water vapor plume discussion provided in the Visual Resources section of the AFC (Section 8.11.4.4.5, pp. 8.11-21 to 22) does not provide information regarding the frequency, duration and size characteristics of the heat recovery steam generator (HRSG) water vapor plumes. Staff will conduct a HRSG plume modeling analysis using the CSVP model to determine plume frequency and plume dimensions. Staff will require additional project data to complete this analysis. Please note that staff intend to model the HRSG using hourly estimated exhaust conditions based on the hourly ambient conditions of the meteorological file used to perform the modeling. Therefore, additional combinations of temperature and relative humidity, if provided by the applicant, will be used to more precisely represent the HRSG exhaust conditions.

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DATAREQUEST

140. For staff to conduct CSVP modeling of the HRSG exhaust plumes, please provide HRSG exhaust parameter data to fill the following table. The values must correspond to full load operating conditions at the specified ambient conditions.

Ambient Conditions	Relative Humidity (%)	Moisture Content (%byWeight)	Exhaust Flow Rate (lb./hr)	Exhaust Temperature (°F)
Full load with Duct Firing and Power Augmentation				
32°F				
61°F				
100°F				
Full load with Power Augmentation no Duct Firing				
32°F				
61°F				
100°F				
Full Load no Duct Firing and no Power Augmentation				
32°F				
61°F				
100°F				

Response: Please refer to Attachment VIS-138.

141. Please provide a short discussion regarding the operating assumptions and basis for the HRSG exhaust parameter data that is provided, including power augmentation (i.e. inlet air foggers and steam injection) and duct burner operating status. Also, please indicate any relationship between the use of duct burners and/or power augmentation with ambient conditions (i.e., note temperature/relative humidity conditions where neither or both are not expected to be operated).

Response: Please refer to Attachment VIS-138.

BACKGROUND

Staff may also model the plume frequency and dimension of the auxiliary boiler. In order for staff to complete the plume assessment of the auxiliary boiler, additional operating data is needed.

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DATAREQUEST

142. Please provide, at a minimum, auxiliary boiler exhaust parameter data to fill the following table. The values must correspond to full load operating conditions at the specified ambient conditions.

Ambient Conditions	Relative Humidity (%)	Moisture Content (%byWeight)	Exhaust FlowRate (lb./hr)	Exhaust Temperature (°F)
32°F				
61°F				
100°F				

Response: Please refer to Attachment VIS-138.

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AttachmentVIS-129

11x17High-resolutionprintoutsofAFCFigures8.11-3through8.11-6

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AttachmentVIS138-1

VaporPlumeAnalysis

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**CentralValleyEnergyCenter
VisibleWaterVaporPlumeAnalysis**

The following is a description of the visible plume modeling performed for the Central Valley Energy Center. As discussed below, the visible plume modeling was performed for the new equipment (i.e., gas turbines/ HRSGs, main cooling tower, and auxiliary boiler).

Overview—Visible Plume Analysis

The basic principle used to analyze the visible water droplet plumes for the Central Valley Energy Center involves modeling the dilution of a water vapor plume as a function of wind speed, distance, and stability class from the release point, similar to the Gaussian approach for modeling gaseous pollutants. As the plume is diluted, the temperature of the plume approaches ambient temperature, and the moisture content of the plume approaches the moisture content of the surrounding ambient air. At any given point along the plume, one can use the dilution factor to determine the plume temperature and moisture content, given knowledge of the temperature and moisture content of the plume at the time it leaves the release point, and of the temperature and moisture content of the ambient air. Knowing the temperature and moisture content of the plume at that point enables one to determine whether the moisture will condense at that point to form a visible water plume. By performing these calculations along a series of points, one can determine whether a visible plume will form and, if so, the length of the visible plume for each hour evaluated.

The modeling system includes the following two components:

- A modified version of the Industrial Source Complex Short Term Model Version 3 (ISCST3, v. 98356) is used to determine plume dilution through the evaluation of water vapor concentrations determined along a series of receptors placed along the plume centerline. These calculations are performed for each hour of the year using a standard modeling meteorological dataset.
- A program called MISTVUE, which determines the amount of dilution of the plume that is required for the visible plume to evaporate, determines the distance (along the plume centerline) that the plume is visible, and summarizes the statistics and prints a report.

Each of these two components is discussed in more detail below.

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Modified ISCST3

ISCST3 was modified to provide for the determination of pollutant concentrations along the centerline of a plume. The centerline of the plume is represented by flagpole receptors along a single radial from the stack. The model produces an output file, which includes concentrations for each receptor along the radial for each hour of the year. Relative to the concentration present in the stack, the concentrations reported at each receptor represent the degree of dilution of the plume with ambient air at that point. The modified version of ISCST3 has the following features:

- Calculations can be performed for up to 100 receptors placed along the centerline of the plume.
- Default ISCST3 features have been disabled that would otherwise prevent calculations of pollutant concentrations at locations close to the emissions source.
- To avoid ignoring meteorological conditions where visible plumes are likely to be formed, wind speeds of less than 1.0 m/s are set to a wind speed of 1.0 m/s, to avoid implementing the calms processing feature of ISCST3.
- Concentrations are calculated regardless of whether the plume height lies above or below the mixing height.
- Calculations are performed for only simple terrain.
- Calculations are performed for only a single source.

MISTVUE

MISTVUE uses a linear interpolation of water vapor pressure, between the stack exit and ambient conditions, together with the Goff-Gratch formulation of the Clausius-Clapeyron equation for water vapor pressure, to determine the amount of dilution required for the visible plume to not be visible. These calculations are performed for each hour of the year, using the same meteorological dataset used for the ISCST3 dispersion modeling analysis. MISTVUE can perform calculations for various types of sources:

- Sources with a fixed exit temperature, exit velocity, and water vapor content
- Sources with diurnal cycles of temperature, exit velocity, or water content that vary by hour
- Sources with exit temperatures at a constant increment above ambient temperatures
- Sources where exit temperature, stack velocity, or moisture content is a function of ambient temperature, with two interpolation regimes available per day (e.g., on-peak and off-peak)
- Sources with moisture content fixed at a specified relative humidity (e.g. 100% for cooling towers), given any ambient temperature.

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In this regard, the modeling system is more versatile than other models typically used to evaluate visible water vapor plumes, such as SACTIP (Seasonal/Annual Cooling Tower Impact Program), since combustion sources, as well as cooling towers, can be treated.

After performing these calculations, MISTVUE reads an output file to determine the distance along the centerline of the plume where sufficient dilution has occurred such that the plume is no longer visible.

MISTVUE then proceeds to summarize and print statistics regarding plume visibility. Available statistical outputs include the number and frequency of hours in which a plume is visible, separately for daytime and nighttime conditions, as well as a frequency distribution of visible plume lengths. Calculation is done for all hours, and (provided sufficient meteorological data are available), for just hours with no fog or precipitation. Calculation of typical plume parameters of the 90th-percentile maximum plume height plume, for all hours, and for just daylight no-fog-no-precipitation hours is also done. Statistics are reconciled internally in the program, for quality assurance purposes.

Meteorological Data

Meteorological data from the Lemoore Naval Air Station for the 1991-1995 calendar years were used for the plume visibility analysis. Data regarding relative humidity, cloud cover, and precipitation from the Fresno airport for the 1991-1995 calendar years were also used for the analysis.

Modeling Assumptions

Table 1 presents the plume-related parameters for the main cooling tower. Cases B, D and F represent peaking operations which would normally be expected to occur only between the hours of noon and 8 pm. Cases A, C and E represent base load operations which would normally be expected to occur during other times.

Table 1 Central Valley Energy Center Visible Water Vapor Plume Modeling Main Cooling Tower Parameters						
	Case A	Case B	Case C	Case D	Case E	Case F
Ambient Temp	32°F	32°F	61°F	61°F	100°F	100°F
Ambient RH	90%	90%	54%	54%	26%	26%
Turbine Load	100%	100%	100%	100%	100%	100%
Duct Burners	Off	Off	Off	Off	Off	On
Inlet Fogging	Off	Off	On	On	On	On
PAG Steam Injection	Off	On	Off	On	Off	On
Cells in Operation	14	14	14	14	14	14
Mass Flow lbs/min/cell	137,341	137,341	137,871	137,871	140,577	140,577
Volume Flow acfm/cell	1,765,302	1,765,302	1,785,287	1,785,287	1,851,902	1,851,902
Exhaust Gas Temp	70°F	70°F	76°F	76°F	96°F	96°F
Exhaust Gas RH	100%	100%	100%	100%	100%	100%

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Table2presents theplume-relatedparametersfortheheatrecoverysteamgenerators. Cases1,5and9representpeakingoperationswhichwouldnormallybeexpectedto occuronlybetweenthehoursofnoonand8 pm.Cases2,6and10representbaseload operationswhichwouldnormallybeexpectedtooccurduringothertimes.

Table2 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling HRSGParameters						
	Case1	Case2	Case5	Case6	Case9	Case10
AmbientTemp	100°F	100°F	61°F	61°F	32°F	32°F
AmbientRH	26%	26%	54%	54%	90%	90%
TurbineLoad	100%	100%	100%	100%	100%	100%
DuctBurners	On	Off	Off	Off	Off	Off
InletFogging	On	On	On	On	Off	Off
PAGSteamInjection	On	Off	On	Off	On	Off
ExhaustH ₂ O wt%	12.21%	6.92%	8.85%	5.55%	8.42%	5.07%
ExhaustH ₂ O vol%	18.51%	10.75%	13.62%	8.70%	12.99%	7.97%
ExhaustFlow lbs/hr	3,698,517	3,819,410	3,820,236	3,695,914	3,987,031	3,857,530
ExhaustMW lbs/lb-mol	27.31	28.00	27.72	28.25	27.80	28.33
ExhaustFlow acfm	1,034,974	1,084,070	1,095,061	1,039,589	1,129,432	1,071,935
ExhaustGasTemp	168°F	193°F	193°F	193°F	187°F	187°F

Table3presents theplume-relatedparametersfortheauxiliaryboiler. Asinglesetof parametersisassumedtoapplytoalloperatingconditions.

Table3 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling AuxiliaryBoilerParameters	
	AllCases
AmbientTemp	All
AmbientRH	All
ExhaustH ₂ O, wt%	11.19%
ExhaustH ₂ O, vol%	17.24%
ExhaustFlow, lbs/hr	140,898
ExhaustMW, lb/lb-mole	27.74
ExhaustFlow, acfm	48,518
ExhaustGasTemp	325°F

InterpretationofResults

Thewaterdropletplumevisibilityanalysisisanapproximationtechnique,whichshould notbeusedtoestablishlimitingconditionsfortheoperationofafacilityoraparticular pieceofequipment. Thefollowingcaveatsshouldbeobservedininterpretingthemodel results:

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- The model is least reliable at predicting plume visibility under calm nighttime conditions, since both temperature and relative humidity vary strongly with height under those conditions. What is measured at the meteorological station (at a height of 10 meters) may vary considerably from actual conditions at plume height. In general, under cold, nighttime conditions (with shallow radiation inversions), temperatures are likely to be colder, and relative humidity higher, at the height of the meteorological monitor than at plume height, thus resulting in an overstatement of plume visibility during these conditions.
- Latent heat release and absorption are not treated in the modeling system. These effects are likely to be of secondary importance for combustion plumes traveling for relatively short distances, but may play a more important role for cooling tower plumes. Condensation of water droplets in the plume will cause the plume to increase in temperature, while evaporation of those droplets will subsequently cool the plume by a similar amount. These effects are likely to be negligible in the case of combustion sources, where the plume temperature is already 100 degrees F (or more) warmer than the surrounding ambient air. The effect of ignoring latent heat release and absorption is to slightly underestimate initial plume rise, and slightly underestimate plume length.
- The model results are extremely sensitive to assumptions regarding ambient and stack gas moisture content and relative humidity (as is actual plume visibility). Furthermore, it is not clear that the accuracy of the relative humidity monitors is suitable for the use to which the data are being applied.

Modeling Results

The following tables summarize the hour-by-hour modeling results. Copies of the modeling input and output files used for this analysis are included in the air quality modeling CD that was submitted to the CEC for this project.

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MainCoolingTower

Table4presents theplumefrequenciespredictedforthemaincoolingtower.

Table4 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling MainCoolingTowerPlumeFrequencies 1991 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	465	196	269	176
<60m	2008	596	1412	383
<100m	2411	734	1677	515
<400m	2838	859	1979	568
All	3061	908	2153	574
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	34.9%	20.7%	49.2%	13.1%
1992 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	616	212	404	183
<60m	1749	558	1191	379
<100m	2238	707	1531	444
<400m	2805	896	1909	483
All	3007	927	2080	488
ReferencePeriod	Year	4392hrs	4392hrs	4392hrs
PercentofPeriod	34.2%	21.1%	47.4%	11.1%
1993 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	663	227	436	204
<60m	1894	612	1282	458
<100m	2382	755	1627	525
<400m	2853	910	1943	580
All	3175	973	2202	583
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	36.2%	22.2%	50.3%	13.3%
1994 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	612	247	365	227
<60m	1664	585	1079	432
<100m	2180	752	1428	518
<400m	2729	947	1782	588
All	3371	1064	2307	597
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	38.5%	24.3%	52.7%	13.6%
1995 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	774	287	487	222
<60m	2040	674	1366	430
<100m	2471	811	1660	501
<400m	2881	921	1960	548
All	3416	1023	2393	557
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	39.0%	23.4%	54.6%	12.7%

Table5presentsplumedimensionspredictedforthemaincoolingtower.

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Table5 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling MainCoolingTowerPlumeDimensions				
1991 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	851	851	237	851
AveragePlumeHeight	70	63	71	59
MaximumPlumeDiameter	446	446	154	446
AveragePlumeDiameter	41	38	42	32
AveragePlumeLength	92	67	103	54
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	117			65
MeanLength	151			52
Mean Diam.	52			36
1992 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	364	364	244	364
AveragePlumeHeight	83	74	84	60
MaximumPlumeDiameter	255	255	165	213
AveragePlumeDiameter	51	50	52	33
AveragePlumeLength	108	69	126	39
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	141			69
MeanLength	762			18
Mean Diam.	102			39
1993 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	649	649	263	254
AveragePlumeHeight	76	68	77	60
MaximumPlumeDiameter	332	332	172	163
AveragePlumeDiameter	46	43	47	32
AveragePlumeLength	98	61	114	39
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	135			68
MeanLength	636			20
Mean Diam.	96			38
1994 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	347	347	226	347
AveragePlumeHeight	77	67	79	61
MaximumPlumeDiameter	200	200	163	191
AveragePlumeDiameter	50	43	53	34
AveragePlumeLength	169	73	214	51
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	136			69
MeanLength	908			17
Mean Diam.	104			39
1995 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	633	633	56	633
AveragePlumeHeight	69	63	71	59
MaximumPlumeDiameter	341	341	154	341
AveragePlumeDiameter	42	38	44	33
AveragePlumeLength	96	51	116	43
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	118			64
MeanLength	295			39
Mean Diam.	76			34

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GasTurbines/ HRSGs

Table6presentsheplumefrequenciespredictedforthegasturbines/ HRSGs.

Table6 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling GasTurbine/HRSGPlumeFrequencies 1991 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	21	10	11	6
<100m	146	41	105	21
<400m	481	92	389	41
All	720	147	573	47
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	8.2%	3.4%	13.1%	1.1%
1992 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	74	43	31	7
<100m	229	86	143	14
<400m	695	217	478	22
All	870	250	620	110
ReferencePeriod	Year	4392hrs	4392hrs	4392hrs
PercentofPeriod	9.9%	5.7%	14.1%	0.7%
1993 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	1	0	1	0
<60m	40	20	20	10
<100m	146	49	97	12
<400m	460	128	332	26
All	767	194	573	28
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	8.8%	4.4%	13.1%	0.6%
1994 LemooreNASMet/FresnoData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	29	15	14	3
<100m	170	53	117	16
<400m	452	119	333	26
All	1023	241	782	40
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	11.7%	5.5%	17.9%	0.9%
1995 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	8	4	4	3
<100m	54	16	38	10
<400m	187	40	147	19
All	641	135	506	125
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	7.3%	3.1%	11.6%	0.6%

Table7presentsplumedimensionspredictedforthegasturbines/ HRSGs.

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Table7 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling GasTurbine/HRSGLPlumeDimensions				
1991 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	906	906	348	906
AveragePlumeHeight	138	154	136	169
MaximumPlumeDiameter	455	455	217	455
AveragePlumeDiameter	86	107	82	91
AveragePlumeLength	293	199	313	180
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	196			148
MeanLength	453			96
Mean Diam.	96			77
1992 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	743	743	402	743
AveragePlumeHeight	186	197	181	191
MaximumPlumeDiameter	364	364	251	364
AveragePlumeDiameter	116	124	113	111
AveragePlumeLength	281	195	315	275
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	305			68
MeanLength	169			0
Mean Diam.	190			0
1993 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	467	467	401	467
AveragePlumeHeight	161	168	159	171
MaximumPlumeDiameter	348	348	254	233
AveragePlumeDiameter	113	122	110	94
AveragePlumeLength	367	218	414	216
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	261			130
MeanLength	154			109
Mean Diam.	159			68
1994 LemooreNASMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	550	550	347	540
AveragePlumeHeight	137	154	134	202
MaximumPlumeDiameter	299	299	217	299
AveragePlumeDiameter	106	122	102	131
AveragePlumeLength	506	312	559	446
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	220			163
MeanLength	1009			102
Mean Diam.	155			99
1995 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	443	443	353	234
AveragePlumeHeight	107	114	106	152
MaximumPlumeDiameter	345	345	217	157
AveragePlumeDiameter	95	109	93	92
AveragePlumeLength	475	245	522	213
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	175			123
MeanLength	1185			183
Mean Diam.	116			70

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AuxiliaryBoiler

Table8presents theplumefrequenciespredictedfortheinletairchillercoolingtowers.

Table8 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling AuxiliaryBoilerPlumeFrequencies				
1991 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/ Non-Rain/Non-Fog
<10m	2	0	2	0
<60m	195	69	126	37
<100m	374	108	266	54
<400m	895	201	694	91
All	1167	260	907	95
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	13.3%	5.9%	20.7%	2.2%
1992 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/ Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	172	82	90	26
<100m	332	125	207	38
<400m	892	286	606	57
All	1240	354	886	66
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	14.1%	8.1%	20.2%	1.5%
1993 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/ Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	130	58	72	28
<100m	277	87	190	38
<400m	754	209	545	69
All	1135	295	840	72
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	13.0%	6.7%	19.2%	1.6%
1994 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/ Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	181	71	110	15
<100m	352	110	242	24
<400m	794	213	581	53
All	1490	352	1138	68
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	17.0%	8.0%	26.0%	1.6%
1995 LemooreNAS/FresnoMetData				
Length	Total	Day	Night	Day/ Non-Rain/Non-Fog
<10m	0	0	0	0
<60m	85	27	58	16
<100m	175	42	133	20
<400m	483	111	372	55
All	989	217	772	63
ReferencePeriod	Year	4380hrs	4380hrs	4380hrs
PercentofPeriod	11.3%	5.0%	17.6%	1.4%

Table9presentsplumedimensionspredictedfortheauxiliaryboiler.

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Table9 CentralValleyEnergyCenter VisibleWaterVaporPlumeModeling AuxiliaryBoilerPlumeDimensions				
1991 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	233	232	233	232
AveragePlumeHeight	71	77	69	77
MaximumPlumeDiameter	104	94	104	84
AveragePlumeDiameter	35	35	35	32
AveragePlumeLength	210	153	225	135
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	99			77
MeanLength	355			74
Mean Diam.	44			31
1992 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	238	238	236	238
AveragePlumeHeight	99	104	96	87
MaximumPlumeDiameter	244	244	104	244
AveragePlumeDiameter	45	46	45	38
AveragePlumeLength	285	215	314	194
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	190			64
MeanLength	276			69
Mean Diam.	40			23
1993 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	237	237	234	195
AveragePlumeHeight	89	95	86	87
MaximumPlumeDiameter	142	142	104	82
AveragePlumeDiameter	42	43	42	32
AveragePlumeLength	266	209	285	138
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	162			76
MeanLength	222			59
Mean Diam.	75			29
1994 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	237	233	237	233
AveragePlumeHeight	76	86	74	99
MaximumPlumeDiameter	163	163	104	163
AveragePlumeDiameter	42	43	42	43
AveragePlumeLength	333	213	367	263
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	118			83
MeanLength	171			187
Mean Diam.	59			27
1995 LemooreNAS/FresnoMetData				
(AllDimensionsinmeters)	Total	Day	Night	Day/Non-Rain/Non-Fog
MaximumPlumeHeight	232	232	229	225
AveragePlumeHeight	66	78	64	91
MaximumPlumeDiameter	104	104	94	72
AveragePlumeDiameter	37	38	37	34
AveragePlumeLength	267	199	285	188
DimensionsforPlumeof90 th PercentileHeight				
MeanHeight	98			98
MeanLength	322			354
Mean Diam.	41			36

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Technical Area: Waste Management

CECAuthor : Alvin Greenberg, Ph.D.

CPPAuthor Karen Parker

BACKGROUND

The State of California requires a minimum of 50 percent of all solid waste generated to be recycled. The AFC does not provide adequate information on the amount of recycling the applicant intends to do for either construction or operation waste. This information is necessary in order to determine the impacts on the environment and the waste disposal facilities.

APPLICANT'S CLARIFICATION TO BACKGROUND STATEMENT

The Background section of this Data Request indicates that the State of California requires a minimum of 50 percent of all solid waste generated to be recycled. This statement incorrectly characterizes the State's requirement. While the State encourages recycling as one method of waste diversion, the State follows the waste management "hierarchy" established by the Federal Pollution Prevention Act of 1990. This hierarchy requires that waste management options be selected in the following order of preference:

- Source Reduction
- Recycling
- Treatment
- Disposal

In 1989, California revised its solid waste management program with the adoption of Assembly Bill 989 to require local governments to develop plans for diverting recyclable wastes away from landfills. AB 989, known as the Integrated Waste Management Act, required each city, county, and regional agency in the state to develop an integrated waste management plan and promote efforts to divert waste to other means of disposal, such as recycling. The law established goals of 25 percent diversion of waste from landfills by 1995 and 50 percent by 2000. These goals applied to the quantities of solid waste that counties were landfilling, not necessarily to the quantity of waste to be recycled. Diversion of waste from landfill disposal using source reduction or treatment is also acceptable.

Furthermore, the State's requirement directly impacts local government, not individual businesses. While industry should do its part to help the county attain its waste diversion goals, much of the solid waste generated in the county comes from residences, construction and demolition projects, commercial businesses, and federal and state infrastructure projects such as highways and military bases.

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Thereisthereforenospecificstaterequirementfor50percentofwastegeneratedbyan individualbusinesstobedivertedfromlandfilldisposal,andnorequirementthat50 percentofthewastegeneratedinthestateberecycled.Asdescribedbelowinthe responsetothedatarequest,theApplicantisproposingtodivertasmuchwasteas possiblefromlandfilldisposal,bymeansofacombinationofsourcereduction, recycling,treatment,andalternatedisposalmethods(e.g.,incineration).

DATA REQUEST

143. PleaseprovideadraftWasteManagementPlanindicatinghowtheapplicant planstocomplywithwastediversionrequirementsofstateandlocalordinance.

Response: As discussed with staff, a draft Waste Management Plan (WMP) will be provided by March 11, 2002. Construction waste will be generated and managed by the construction contractors.

144. Pleasealsoindicatethepercentageofhazardousandnon-hazardouswastes thatwouldbedivertedfromlandfilldisposal.

Response: The Applicant will attempt to divert up to 100 percent of hazardous waste and as much solid waste as possible from landfill disposal. Hazardous waste would be disposed of in accordance with regulations and either recycled through manufacturer's specifications or disposed at an appropriately licensed facility as identified in Section 8.13 of the AFC. As discussed with staff, a draft Waste Management Plan (WMP) will be submitted by March 11, 2002.

BACKGROUND

ThePhaseIEnvironmentalSiteAssessmentpreparedbyERMnotedthat“pesticide andfertilizersareandhavehistoricallybeenappliedtothecropsandlandatthesubject property”andthus“thesubjectpropertymaycontainelevatedconcentrationsof pesticides.”Inordertoproperlyprotectsiteworkersandthepublic,staffneedstoknow ifthesoilsonsitedoindeedcontainelevatedconcentrationsofpesticides.

DATA REQUEST

145. PleaseprovideaPhaseIIESAconsistingofappropriatesoilandgroundwater samplingandanalysisforpesticides.

Response: SoilsamplingandanalysisforpesticidesattheCVECsiteis currentlybeingconducted.ResultsandanalysiswillbeprovidedtotheCEC

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upon availability. Tentatively, results and analysis will be submitted by late March. It is not necessary to conduct groundwaters sampling at the CVEC site.